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MONTHLY WEATHER REVIEW

DECEMBER 1945

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CORRECTION

MONTHLY WEATHER REVIEW, September 1945, vol. 73, Storm Table, page 161: Bryce Canyon, Utah, September 2, "4 inches of rain fell in 13 minutes," *should read*, "1.04 inches of rain fell in 13 minutes."

Annual Temperature Departures (°F.) in the United States, 1945

Percentage of Normal Annual Precipitation in the United States, 1945

MONTHLY WEATHER REVIEW

Acting Editor, Robert N. Culnan

VOL. 73, No. 12
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DECEMBER 1945

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THE WEATHER OF 1945 IN THE UNITED STATES

by J. L. BALDWIN
(Weather Bureau, Washington, D. C.)

The year 1945 was notable for the severe cold weather, record snowfall, and continuous snow cover in the eastern portion of the country until February; an abnormally warm March east of the Rockies; and unfavorably cool, wet weather for much of the remainder of the year—especially during April, May, and June—in central and northeastern areas. Frequent rains and resulting floods occurred in the Ohio, lower Missouri, and Mississippi Valleys, while droughts prevailed in the Southwest and in many south Atlantic and Pacific sections. Crops and farm work received serious set-backs from time to time in large areas, but generally unfavorable conditions were followed by favorable periods. Tornadoes, hurricanes, and other violent wind- and rainstorms, accompanied at times by hail and lightning, caused the loss of nearly 200 lives and more than $110,000,000 property damage.

The northeastern part of the country had an extremely cold January, with the departures from normal temperature ranging from −6° to as much as −10° over wide portions of northern Ohio, Pennsylvania, and New York. In marked contrast, much of the central and northern Great Plains had unusually warm weather, with departures from normal of +6° to +9° over most districts from northern Kansas northward. During January relatively heavy precipitation was concentrated in a few localities, notably southern Texas, the central Great Plains and adjoining regions, the Northeast, and much of the Florida Peninsula.

Temperatures during February averaged above normal in nearly all sections of the country. There were, however, several severe cold periods; during the first week a general freeze extended over the Southeast, reaching the Lake Okeechobee region of Florida on the 2d and causing damage to citrus and truck. It was the second wettest February of record in Arkansas, and only once before did Wisconsin receive so much snow during February. A severe ice storm occurred in Arkansas and north-central Texas on the 26th and 27th. The first tornadoes of the year appeared on the 12th, when a series of about seven struck Mississippi and Alabama.

Abnormal warmth prevailed during March over practically the entire region east of the Rocky Mountains. Temperatures averaged higher than for any previous March of the record for the States of Indiana, Ohio, Michigan, New York, New England, New Jersey, North Carolina, and South Carolina, with many other States in this area having the warmest March since 1910. This warmth completed the removal of the persistent snow cover from most northern areas; for instance, snow disappeared at Northwood, Iowa, on the 12th, after establishing a record of 108 days of continuous snow cover at that place. The month was extremely wet in central parts of the country, especially in the Ohio and Mississippi Valleys, where disastrous floods occurred. It was the wettest March of record in Arkansas, Oklahoma, southern Illinois, southern Indiana, much of Missouri, and some adjacent areas. On the other hand, it was unusually dry in eastern and southeastern sections and in the western Great Plains. The Far West was generally cold and wet. Unusual warmth and generally adequate moisture caused vegetation to advance rapidly over practically the entire region east of the Rockies, and by the end of March the season was from 2 weeks to a month ahead of normal. Trees and shrubs were blooming northward to Minnesota, and considerable fruit was in bloom in the Ohio Valley and central and mid-eastern sections of the country.

The possibility of dangerous freezing, with vegetation, especially fruit, at such a critical stage of development so early in the season, became a reality when from April 4–7 and on the 23d cold weather overspread central and eastern sections of the country and brought severe frosts and freezing southward as far as Oklahoma, Arkansas, the Ohio Valley, and many southern Appalachian regions, with considerable damage to fruit and early gardens. The eastern portion of the country was much warmer than normal during April and the western part much colder. It was the warmest April of record for the Carolinas, while Wyoming reported the third coldest April. Temperatures dropped to zero at Fort Valley, Ariz., on the 11th, and to −36° at Eagle Nest, N. Mex., on the 5th—the lowest temperatures ever recorded during April in these two States.

Continued wet weather in central sections, especially from Oklahoma and Arkansas to the Great Lakes, seriously delayed the seeding and development of crops, notably corn. One of the worst April snowstorms of record occurred in Iowa and some adjacent areas on the 3d and 4th. Tornadoes were unusually destructive in the Oklahoma-Illinois area on the 12th, and floods caused enormous losses during this month.

May was unfavorably cool in practically the entire region from the Western Plains to the Atlantic and Gulf Coasts, especially in the northern interior, with frosts in sections of the southern Lake Region as late as the 24th and 30th; however, unusual warmth prevailed in the South the last few days. An unusual May snowstorm moved across the more northern States, with falls up to 8 inches in Iowa on the 9th, and 10 inches to 2 feet in New England on the 10th and 11th. New York and New England experienced the greatest average snowfall of record for May.

Rains became less frequent after the 2d decade in many areas from the Mississippi Valley eastward; farm work was rushed locally where the ground was not too wet, but conditions were mostly unfavorable for work and crops in this area. Precipitation was the greatest of record for May in Oregon and the greatest for the February to May period in Missouri, while pastures and crops were suffering from drought in Florida, western Texas, New Mexico, and Arizona.

June opened with record-breaking cold weather in middle and northern sections and frosts in the southern Lake Region. It was the coldest June of record for the

states of Iowa, Nebraska, and South Dakota and the second coldest June in Minnesota, North Dakota, Utah, and Wyoming. The heaviest June snowfall of record occurred in extreme northeastern Minnesota on the 1st and 2d and in upper Michigan on the 2d and 3d. Snow removal equipment was required to clear roads of new snow amounting to as much as 7 inches at many stations in western upper Michigan, where measurable snowfall was never known to have occurred before in June. It was unusually wet from eastern Texas to the southern Lake Region and in the eastern Great Basin and middle Rocky Mountains, with the greatest average June rainfall of record for Wyoming. The drought continued in the Southwest, while heavy rains accompanying a tropical storm through Florida and along the Atlantic Coast from the 23d to the 25th ended one of the worst droughts in the history of Florida.

An unusually severe hailstorm, with some disc-shaped stones up to 2 inches in diameter, occurred in Washington, D. C., and vicinity on June 2; and a tornado struck Jamestown, N. Y., on the 10th. A violent windstorm, accompanied by hail, caused losses estimated at $2,000,000 in Kansas on the 26th.

The month of July was cool from the Lake Region to the Gulf and warm in the Far West. A few stations in north-central areas reported the lowest July temperature of record on the 11th, with some frost damage to truck on muck lands in the Lake Region. In Arizona on the 1st many stations recorded both their highest and lowest temperatures for the entire month. Unusually heavy to torrential rains fell in the Middle Gulf States and from Florida to New England, with considerable crop and property damage and some loss of life between Virginia and New York. It was the wettest July of record for Virginia and Maryland. Showers broke the longest drought for this time of the year that ever occurred in Arizona, while continued dryness in the North Pacific States favored forest fires, which burned over more than 8,000 acres in the State of Washington alone during the month.

August was pleasant in most sections and rainfall was rather spotty. The most noteworthy feature was the hurricane which moved along the lower Texas coast, then inland in the Aransas-San Antonio Bay area of Texas during the night of August 26–27, and finally dissipated its hurricane intensity a short distance west of Houston. The torrential rains and wind, which exceeded 100 miles per hour, caused the loss of 3 lives, scores of injuries, and property and crop damage estimated at $20,133,000, with principal damage to rice and cotton. Reports placed hail damage in Montana during this month at approximately $2,500,000.

The month of September opened with many record-breaking high temperatures in the Far West and far Southwest and closed with freezing southward to western Oklahoma and southern Michigan. It was the warmest September of record at San Diego, Calif. A hurricane, with winds of 138 miles per hour at Carysfort Reef, Fla., swept over the south and central parts of this State on the 15th and 16th and moved northeastward along the Atlantic Coast. It caused a loss of 4 lives, 43 injuries, and crop and other property damage estimated at $54,115,000 in Florida. Included in the property loss was nearly $35,000,000 in damage at the Navy Blimp Hangars at Richmond, Fla., where 3 great hangars went to pieces at the height of the storm and burned, consuming blimps, planes, and automobiles evacuated there for shelter. It is believed that timely warnings by the Miami Hurricane Forecast Center saved thousands of lives by enabling the Red Cross and other agencies to remove around 50,000 persons from the path of the storm.

September was wet in most of the Central Valleys and eastern portion of the country, with the greatest average September precipitation of record occurring in the States of Missouri, Oklahoma, and West Virginia. An unusually large number of rainy days occurred in Missouri, Pennsylvania, and Virginia. Meanwhile, planting and growth of grains were retarded in most of the Southwest and Pacific States by dryness.

Cool weather prevailed in the Mississippi and Ohio Valleys during the first half of October, but the western portion of the country enjoyed unusual warmth during most of the month. Generally clear skies and rather dry weather in central and north-central areas and from northern Florida to southern Pennsylvania were very beneficial for maturing, curing, and harvesting late crops, especially corn which was late and had an unusually high moisture content. It was the driest October of record in Iowa, while rains were more frequent in New York than during any preceding October. Loss to the raisin crop of California by rains and poor drying conditions has been estimated at $12,000,000.

Winter appeared in the Northwest during the second week of November, with snow cover in Montana and the Dakotas and below zero temperatures in the more northern Plains States. By the 25th freezing extended to central Florida, with relatively small damage reported. The month averaged warmer than usual over the greater portion of the country, except from central Montana to western Wisconsin. From none to less than half the normally expected precipitation for November fell in the Great Plains and Southwest, which further intensified the need of moisture for grains and grass in most of these areas.

There was too much rain in Tennessee and adjacent areas for picking remnants of the cotton crop and in the Ohio Valley and Northeast for completion of the corn harvest. It was the wettest November of record in Tennessee.

Severe cold weather prevailed generally during the middle of December. It was accompanied by widespread light to heavy snows, and minimum temperatures occasionally ranged from more than 30° below zero in extreme northern districts to freezing in southern coastal areas and central Florida.

A record-breaking snowfall of 36.6 inches occurred at Buffalo, N. Y., from the 14th to the 17th, making a total snow cover of 32.0 inches by the evening of the 17th, which equalled the record of greatest depth of snow on the ground at this city established on February 14 of this year. The occurrence of 24.3 inches of snow in 24 hours, and a monthly total of 51.3 inches exceeded previous records for any month. Monetary loss was estimated at $2,000,000.

Precipitation was heavy from the Gulf to Maine and in the Pacific States, while amounts were generally light in the Western Plains, Rocky Mountain region, and Great Basin. It was too wet in the Ohio Valley and the South for the completion of late harvests, and too dry in much of the western portion of the Great Plains and the Southwest for small grains and grass.

TEMPERATURES

The mean temperature for the year 1945, derived by weighting the average temperatures of the several States, according to their areas, was 53.0° or practically normal, being only 0.2° less than the average for the 1886 to 1945 period. The highest mean annual temperature for

the United States was 55.4° in 1934 and the lowest 51.3° in 1917.

Monthly and annual State temperature departures are presented in Table 1, supplemented by a chart showing the annual areal distribution.

Temperatures for the year 1945 averaged higher than usual in the Atlantic States and Gulf Coastal Plains and were somewhat below normal in most central sections north of Arkansas and Oklahoma.

These below-normal annual values, especially in portions of the Corn Belt, were due to persistently cool and wet weather during late spring and early summer, which gave the corn crop an unusually late start. Mean temperatures for the year exceeded their normals by more than 2° in sections of the Atlantic and east Gulf States.

The highest State yearly average was 70.8° for Florida and the lowest 39.5° for North Dakota. The greatest monthly average was 82.6° for Texas during August, and the lowest was the January average of 11.0° for Minnesota. The latter value was considerably higher than in 1943 when the lowest State monthly average in the country was −1.4°, which occurred in North Dakota during January. The highest temperature recorded during the year was 125° at Cow Creek, Calif., on July 26 and the lowest −46° at Eagle Nest, N. Mex., on January 29. The lowest temperature in Alaska during the year was −65° at Allakaket on February 13. For comparison, the highest temperature ever recorded in the United States was 134° at Greenland Ranch, Death Valley, Calif., on July 10, 1913, and the lowest −66° at Riverside Ranger Station, Wyo., on February 9, 1933. Lowest of record for Alaska was −78° at Ft. Yukon, just within the Arctic Circle, on January 14, 1934.

PRECIPITATION

The average annual precipitation for the country as a whole, based on weighted averages, was 32.89 inches, or 3.74 inches more than the average for the 1886 to 1945 period, making this the wettest year of record; the record 1915 average had been 32.74 inches.

Figure 1 gives the percentages of normal precipitation by States for 1945; Figure 2, the percentages for the growing season; Table 2 the percentages for the months and the year; and Table 3, the monthly and annual amounts. The areal distribution of annual precipitation is shown in percentages by chart.

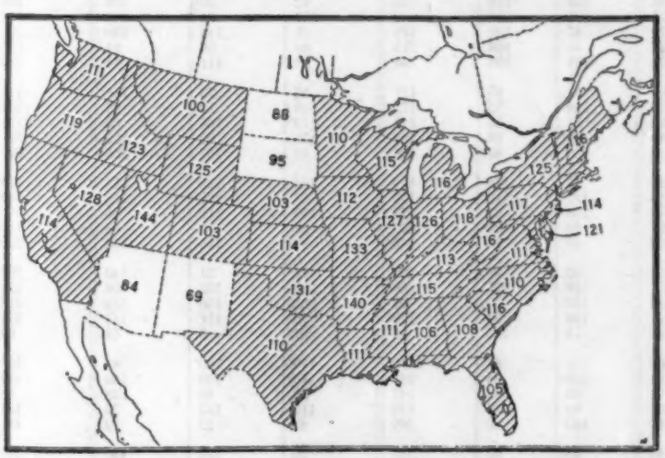


FIGURE 1.—Percentage of normal precipitation, 1945. (Shaded States normal or above).

FIGURE 2.—Percentage of normal precipitation, April 1–September 30, 1945. (Shaded States normal or above).

Total precipitation for 1945 was below normal from Mexico to Colorado, in most of the Dakotas, and in some adjacent areas; elsewhere, totals for the year were near normal to considerably above. The greater portions of extreme western Texas, New Mexico, Arizona, and North Dakota received less than 80 percent of their usual amounts, with a few stations in New Mexico reporting less than half their normals. On the other hand, totals for the year were from 25 to over 50 percent more than normal from eastern Texas and Oklahoma northeastward over the Ohio Valley, for most of the Northeast, and in the Great Basin.

Annual precipitation exceeded the normal for all states except New Mexico, Arizona, and the Dakotas. The average excesses were from 25 to 44 percent of normal for Arkansas, Oklahoma, Missouri, Illinois, Indiana, New York, Utah, Nevada, and Wyoming, while New Mexico had a deficiency of 31 percent. The wettest State was Arkansas, with an average annual total of 67.48 inches. Other States averaging over 55 inches of precipitation for 1945 were Alabama, Florida, Louisiana, Mississippi, South Carolina, and Tennessee. The driest State was New Mexico with 9.99 inches.

The greatest monthly precipitation during 1945 at any station in the States was 27.57 inches at Biloxi, Miss., during July; in Alaska, 32.36 inches at Whittier during January; in Hawaii, 59.00 inches at Kukui during August.

During the April to September growing season average State values show that more than the usual amount of precipitation was received in all but five States. The seasonal totals exceeded their normals by 35 to 51 percent in Utah, Nevada, Wyoming, and Idaho, and in the group of States from Oklahoma and Arkansas to Michigan; and generally from 20 to 37 percent from South Carolina to New York and New England. Totals for this period were deficient by 20 to 30 percent in New Mexico, Arizona, and California, and by lesser amounts in North Dakota and Montana.

TABLE 1.—*Monthly and annual temperature departures from normal for the year 1945*

State	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	+0.4	+4.3	+9.0	+3.2	−1.9	+0.9	0.0	+0.5	+2.6	−0.8	+2.7	−5.7	+1.3
Arizona	+0.2	+0.9	−4.3	−2.3	−0.4	−3.2	+0.8	+1.0	+1.4	+2.6	−0.2	−2.2	−0.5
Arkansas	−1.0	+0.5	+6.3	+1.1	−2.9	−2.0	−2.4	−1.2	−0.3	−2.0	+2.2	−5.9	−0.6
California	−0.3	−0.1	−4.6	−0.6	−1.8	−0.6	+1.2	−0.3	+1.9	+1.3	−1.9	−0.3	−0.5
Colorado	+2.3	+3.1	+1.3	−4.4	+0.8	−3.9	0.0	+1.3	+1.3	+1.9	−0.1	−2.4	+0.1
Florida	−0.9	+3.7	+5.7	+4.2	−0.6	+1.3	−0.2	+0.1	+1.3	+0.4	−0.1	−2.2	+1.1
Georgia	−0.5	+3.5	+8.0	+3.0	−2.8	+0.5	−0.5	−0.7	+1.9	−1.6	+1.7	−5.6	+0.6
Idaho	+3.4	+3.9	−1.1	−3.9	+0.2	−3.5	+0.1	+0.8	−2.7	+2.4	−1.6	−1.0	−0.2
Illinois	−3.7	+2.8	+10.7	+1.5	−4.7	−3.8	−2.7	−0.4	−0.5	−1.7	+0.6	−6.3	−0.7
Indiana	−5.2	+2.0	+11.4	+1.9	−4.7	−2.7	−2.5	−0.6	+1.0	−1.6	+1.6	−6.5	−0.5
Iowa	+0.6	+3.0	+10.7	−0.1	−5.0	−5.5	−2.5	+0.3	−1.0	0.0	+0.5	−6.1	−0.4
Kansas	+2.6	+2.0	+6.9	−2.7	−2.3	−5.8	−2.0	+0.5	−0.5	+0.1	+2.5	−5.5	−0.4
Kentucky	−3.9	+1.7	+10.1	+2.6	−3.8	−2.4	−1.9	−0.4	+1.9	−1.6	+1.7	−5.8	−0.2
Louisiana	−1.3	+3.2	+5.9	+1.4	−2.0	+0.2	−0.9	−0.6	+1.1	−1.7	+3.2	−3.6	+0.4
Maryland-Delaware	−4.8	+1.8	+10.2	+4.0	−2.7	+0.6	+0.6	−1.0	+2.9	−0.7	+3.1	−4.4	+0.8
Michigan	−5.6	+2.5	+12.6	+3.0	−5.2	−3.7	−2.8	+0.2	−0.9	−1.6	+1.0	−4.1	−0.4
Minnesota	+1.4	+2.5	+9.4	−2.5	−5.6	−5.3	−2.2	+0.3	−2.3	−0.7	−1.2	−5.6	−1.0
Mississippi	−0.9	+3.3	+7.4	+1.8	−2.5	+0.1	−1.1	−0.5	+1.9	−1.5	+3.2	−5.2	+0.5
Missouri	−0.8	+2.2	+8.6	+0.6	−4.0	−4.1	−2.9	+0.2	+0.1	−0.9	+1.8	−5.3	−0.5
Montana	+4.7	+2.8	+3.0	−4.6	−1.9	−4.0	+0.6	+1.4	−2.2	+2.7	−2.0	−2.7	−0.2
Nebraska	+4.6	+3.6	+7.0	−3.2	−3.3	−6.9	−1.2	+0.3	−1.7	+1.8	+1.8	−5.5	−0.2
Nevada	+1.9	+2.6	−2.5	−2.0	+0.3	−2.3	+2.7	+0.4	+0.8	+3.4	+0.6	+1.2	+0.6
New England	−5.6	+1.5	+8.5	+5.5	−3.0	−0.5	−0.2	+0.1	+2.4	−1.5	+1.3	−4.3	+0.4
New Jersey	−6.5	+1.6	+10.0	+4.9	−2.0	+0.9	−0.6	−0.8	+3.2	−0.4	+2.4	−4.8	+0.7
New Mexico	+0.4	+2.5	−0.4	−2.6	+1.3	−2.4	−0.1	+1.8	+0.7	+0.6	+0.7	−1.9	0.0
New York	−8.3	+2.1	+10.9	+5.8	−3.5	−0.8	−0.3	+0.5	+2.6	−1.0	+1.5	−5.7	+0.3
North Carolina	−2.5	+1.7	+9.2	+4.9	−2.8	+0.7	−0.1	−0.9	+2.8	−0.7	+1.9	−5.7	+0.7
North Dakota	+5.9	+5.2	+9.5	−3.5	−5.8	−5.3	−1.2	+0.6	−2.3	+0.9	−4.4	−6.4	−0.6
Ohio	−6.8	+1.4	+11.3	+3.3	−4.5	−2.2	−2.0	−0.2	+2.1	−1.3	+1.8	−5.0	−0.2
Oklahoma	+0.9	+0.6	+4.3	−2.2	−1.3	−2.3	−2.8	−1.3	−0.6	−1.1	+3.0	−3.8	−0.6
Oregon	+2.7	+2.4	−2.5	−2.5	+0.2	−1.5	+0.9	+0.3	−1.0	+1.5	−1.4	−0.4	−0.1
Pennsylvania	−7.8	+2.1	+10.6	+3.8	−4.1	−1.5	−1.8	−1.0	+1.7	−1.5	+0.7	−5.6	−0.4
South Carolina	−1.1	+2.5	+8.6	+4.2	−2.9	+0.9	−0.2	−1.1	+2.4	−0.8	+2.0	−5.6	+0.7
South Dakota	+4.8	+3.3	+7.0	−3.1	−4.4	−7.0	−1.6	+0.3	−1.9	+1.7	−0.3	−5.9	−0.6
Tennessee	−1.8	+1.2	+9.5	+2.0	−3.3	−1.6	−0.9	−0.1	+2.1	−1.5	+2.2	−5.7	+0.2
Texas	−0.1	+1.3	+4.4	−1.7	−0.2	−0.2	−1.4	−0.2	+0.5	−2.1	+3.6	−1.6	+0.2
Utah	+4.2	+3.5	−2.0	−4.3	+0.7	−5.4	+0.3	+0.3	−1.7	+2.8	−1.7	−1.3	−0.4
Virginia	−3.1	+2.1	+9.9	+3.5	−3.0	+0.2	−0.7	−1.0	+2.9	−0.9	+1.9	−5.3	+0.5
Washington	+4.7	+3.4	−1.8	−3.3	+1.3	−1.3	+1.0	+1.0	−1.8	+1.2	−1.7	−0.6	+0.2
West Virginia	−4.2	+2.1	+9.6	+3.7	−3.9	−1.5	−1.0	−0.8	+2.1	−1.6	+1.7	−5.6	0.0
Wisconsin	−2.3	+2.0	+11.2	+0.8	−4.3	−4.7	−2.6	+0.6	−1.1	−1.5	0.0	−4.5	−0.5
Wyoming	+2.9	+1.9	+1.9	−5.3	0.0	−4.8	+0.4	+1.2	−2.1	+3.7	+0.5	−2.2	−0.2

TABLE 2.—*Percentage of normal precipitation, 1945*

State	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	81	132	84	173	84	80	104	65	106	137	110	133	106
Arizona	104	40	205	32	6	12	99	107	20	139	1	114	85
Arkansas	54	223	238	154	108	228	105	89	234	103	101	55	140
California	24	125	122	34	126	116	100	511	33	230	136	183	114
Colorado	110	88	81	125	83	123	100	166	79	88	62	75	103
Florida	140	40	22	111	48	116	138	120	126	92	50	179	105
Georgia	77	115	53	184	83	73	119	86	144	107	91	186	108
Idaho	72	131	128	87	166	170	45	130	173	81	148	130	123
Illinois	45	128	202	156	131	170	45	104	213	66	98	94	127
Indiana	35	135	215	123	118	172	104	106	194	88	111	84	126
Iowa	62	134	167	159	153	109	84	96	117	15	76	181	112
Kansas	128	91	136	221	92	120	116	75	177	43	12	96	114
Kentucky	90	180	151	108	119	129	81	66	118	79	163	66	113
Louisiana	98	124	120	122	98	103	139	99	104	170	62	102	111
Maryland-Delaware	97	100	46	102	116	116	236	89	156	53	157	165	121
Michigan	56	98	83	144	166	123	97	116	159	104	115	85	116
Minnesota	79	158	156	126	84	112	121	112	127	25	105	158	110
Mississippi	87	150	130	116	69	112	123	64	123	166	117	95	111
Missouri	44	193	233	199	117	191	59	55	237	78	52	65	133
Montana	86	85	119	106	94	109	44	75	141	90	118	138	100
Nebraska	96	103	82	121	113	133	92	96	130	14	21	140	103
Nevada	38	147	164	68	136	251	116	223	86	218	102	104	128
New England	107	108	57	131	180	148	126	70	93	201	156	132	116
New Jersey	83	89	62	89	129	111	198	93	122	70	174	141	114
New Mexico	134	30	79	74	23	30	79	110	58	97	3	64	69
New York	106	102	88	135	157	106	154	68	179	149	160	83	125
North Carolina	57	126	60	100	86	81	136	84	247	75	109	166	110
North Dakota	84	73	179	77	70	72	93	86	147	36	83	128	88
Ohio	53	128	206	123	130	127	94	58	179	112	132	73	118
Oklahoma	96	234	245	174	52	187	149	86	209	42	22	22	131
Oregon	72	128	131	105	218	45	44	82	117	70	169	130	119
Pennsylvania	83	90	112	121	133	98	134	91	186	87	182	89	117
South Carolina	69	113	62	115	87	82	118	101	294	58	67	206	116
South Dakota	96	119	116	57	98	123	86	97	134	22	48	98	95
Tennessee	85	172	74	118	134	124	90	77	117	107	204	104	115
Texas	108	152	176	118	45	113	151	147	93	141	39	78	110
Utah	55	148	164	127	99	367	99	233	77	119	202	156	144
Virginia	74	112	48	88	110	84	188	67	225	46	136	156	111
Washington	94	124	145	105	140	44	35	56	164	96	130	100	111
West Virginia	89	135	119	95	122	87	121	91	234	58	191	80	116
Wisconsin	46	153	105	155	124	113	97	145	105	37	196	107	115
Wyoming	75	128	103	124	91	237	78	170	160	50	128	141	125

TABLE 3.—*Monthly and annual precipitation (inches), 1945*

State	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	4.00	7.05	4.89	7.69	3.29	3.45	5.75	3.06	3.46	3.72	3.55	6.50	56.41
Arizona	1.30	0.53	2.11	0.18	0.02	0.04	2.06	2.45	0.25	1.14	0.01	1.46	11.55
Arkansas	2.37	7.78	11.12	7.44	5.23	9.26	3.94	3.16	7.85	3.11	3.97	2.25	67.48
California	1.17	5.42	4.48	0.58	1.26	0.36	0.07	0.46	0.15	2.81	3.14	7.42	27.32
Colorado	0.87	0.85	1.05	2.22	1.52	1.71	2.18	3.23	1.08	1.00	0.48	0.67	16.86
Florida	3.87	1.24	0.70	3.15	1.93	7.84	10.14	8.40	8.41	3.81	1.10	4.95	55.54
Georgia	3.29	5.64	2.60	6.71	2.88	3.25	6.99	4.53	5.32	2.90	2.40	7.68	54.19
Idaho	1.59	2.28	2.31	1.25	2.65	2.28	0.29	0.78	1.76	1.18	2.89	2.75	22.01
Illinois	1.08	2.52	6.38	5.35	5.26	6.65	1.45	3.47	7.70	1.66	2.60	2.02	46.14
Indiana	1.13	3.28	7.96	4.40	4.70	6.65	3.44	3.60	6.43	2.39	3.38	2.33	49.69
Iowa	0.67	1.43	2.88	4.38	6.17	4.70	2.96	3.43	4.37	0.33	1.25	2.03	34.60
Kansas	0.88	0.91	1.96	5.58	3.50	4.72	3.64	2.35	4.89	0.81	0.15	0.81	30.20
Kentucky	4.05	6.37	7.06	4.36	4.69	5.32	3.33	2.47	3.44	2.04	5.64	2.50	51.27
Louisiana	4.76	5.60	5.57	5.72	4.35	5.04	8.42	5.10	3.97	5.50	2.39	5.33	61.75
Maryland-Delaware	3.26	3.16	1.70	3.62	4.32	4.50	10.49	3.92	5.35	1.59	4.17	5.11	51.19
Michigan	1.13	1.72	1.72	3.43	5.28	3.80	2.62	3.23	5.02	2.79	2.89	1.76	35.39
Minnesota	0.63	1.20	1.81	2.69	2.66	4.46	3.97	3.57	3.50	0.45	1.20	1.26	27.40
Mississippi	4.47	7.37	7.34	5.71	2.96	4.87	6.26	2.67	3.76	4.26	4.22	5.09	58.98
Missouri	1.08	4.05	7.44	7.75	5.50	8.84	2.10	2.08	9.46	2.18	1.39	1.39	53.26
Montana	0.75	0.60	1.12	1.21	1.94	2.80	0.62	0.80	1.85	0.92	1.09	1.19	14.89
Nebraska	0.50	0.73	0.90	2.88	3.74	4.68	2.72	2.65	2.63	0.20	0.16	0.91	22.70
Nevada	0.46	1.54	1.59	0.52	1.14	1.23	0.44	1.05	0.37	1.31	0.65	1.03	11.33
New England	3.80	3.47	2.08	4.42	6.01	5.08	4.72	2.70	3.52	3.53	5.43	4.46	49.22
New Jersey	3.02	3.16	2.37	3.28	4.78	4.30	0.32	4.37	4.68	2.51	5.54	5.03	52.36
New Mexico	0.79	0.22	0.59	0.64	0.27	0.37	1.94	2.63	1.00	1.07	0.02	0.45	9.99
New York	3.18	2.81	2.68	4.08	5.38	3.90	6.00	2.56	6.27	4.87	4.95	2.43	49.11
North Carolina	2.16	5.08	2.51	3.60	3.51	3.81	8.07	4.76	9.66	2.46	2.90	6.88	54.80
North Dakota	0.41	0.36	1.34	1.10	1.54	2.48	2.31	1.68	2.14	0.37	0.48	0.64	14.85
Ohio	1.63	3.23	7.20	3.97	4.72	4.91	3.57	1.98	5.30	2.80	3.60	1.98	44.89
Oklahoma	1.38	3.20	5.17	5.79	2.37	6.95	4.20	2.58	8.25	1.19	0.45	0.36	41.89
Oregon	2.94	4.04	3.74	2.14	3.75	0.57	0.19	0.33	1.40	1.39	6.09	5.25	31.83
Pennsylvania	2.68	2.66	3.91	4.17	5.12	4.07	5.75	3.79	6.42	2.75	5.25	2.73	49.30
South Carolina	2.48	4.76	2.39	3.72	3.10	3.94	6.87	5.82	11.81	1.70	1.56	7.24	55.39
South Dakota	0.53	0.68	1.26	1.19	2.75	4.07	2.14	2.13	1.99	0.25	0.30	0.55	17.84
Tennessee	4.09	7.50	4.01	5.22	5.58	5.21	4.01	3.14	3.52	2.96	7.28	4.72	57.24
Texas	2.04	2.77	3.57	3.47	1.64	3.50	3.93	3.55	2.75	3.59	0.88	1.77	33.46
Utah	0.66	1.88	2.28	1.47	1.13	2.09	0.86	2.28	0.78	1.27	1.82	1.75	18.27
Virginia	2.44	3.52	1.79	2.99	4.30	3.51	8.76	3.00	7.26	1.42	3.43	4.72	47.14
Washington	4.66	4.57	4.93	2.52	2.76	0.77	0.26	0.44	2.93	2.87	6.51	5.67	38.89
West Virginia	3.28	4.36	4.58	3.37	5.01	3.82	5.54	3.72	7.18	1.65	5.20	2.57	50.37
Wisconsin	0.66	1.99	1.90	3.89	4.40	4.48	3.31	4.79	3.78	0.90	3.59	1.47	35.16
Wyoming	0.61	1.00	1.16	1.92	1.83	3.72	1.05	1.85	1.78	0.54	0.87	1.03	17.36

PRELIMINARY REPORT ON TORNADOES IN THE UNITED STATES DURING 1945

by J. L. BALDWIN
(Weather Bureau, Washington, D. C.)

The total number of tornadoes reported during 1945 was 136, or 5 less than the annual average number for the 1916–1945 period. The seasonal distribution was somewhat unusual; in March there were 30, an unusually large number for March, while in May only 24 occurred, 7 less than the average number for that month. Three-fourths of the year's total occurred in the 4 months from March to June. Tornadoes occurred in 26 States, all east of the Rocky Mountains, and were especially widespread in June when they were reported in 13 States.

There were 198 deaths, or 39 less than the average annual toll caused by tornadoes; about 1,504 people were injured. The number of deaths and injuries was high during April, especially on the 12th, when 119 lost their lives and over 800 were injured in Oklahoma, Arkansas, Missouri, and Illinois. No deaths, however, were attributed to 17 tornadoes in Iowa and the same number in Kansas during the year.

Property damage for the year was tabulated at $21,724,500, about twice the usual destruction. More than three-fourths of this occurred in April and June. Damage was extremely high in Illinois, New York, and Oklahoma, with a total loss of $14,880,000 in these three States, or seven-tenths of the total suffered by the entire country.

The first tornadoes of the year occurred on February 12, when a series of 7 struck Mississippi and Alabama, with a loss of 41 lives, 416 injured, and about $2,300,000 property damage. One of these moved northeastward through Montgomery, Ala., at about 5:22 p. m., with a forward speed of 49 miles per hour, killing 26 persons, injuring 293, and causing property damage estimated at $1,700,000.

March was notable for the severe tornado which occurred in Indiana, crossing east-northeastward across Posey, Vanderburg, Warrick, and Dubois Counties from 3 to 4 a. m. of the 17th.

The greatest tornado disaster during 1945 occurred at Antlers, Okla., on April 12, when 69 persons were killed and about 353 injured as the storm passed through business and residential districts of the city. On the same date a tornado severely damaged the State School for the Blind at Muskogee, Okla., killing 13 persons, injuring 113. Another twister skirted the southeast edge of Oklahoma City on the 12th, killing 8 persons and injuring 200. These storms made April 12 the worst single day of tornado disaster in the history of Oklahoma. Other storms on the 13th, 14th, and 15th in Oklahoma caused 4 deaths at Hulbert, 3 at Red Oak, 1 near Ardmore, and 5 in sections of Sequoyah County.

Tornado activity on April 12 extended to Arkansas, Missouri, and Illinois. In Logan, Johnson, and Madison Counties, Ark., tornadoes killed 22 people, injured many, and destroyed considerable property. A series of three or more struck southwestern and northeastern Missouri between 7 p. m. and 10 p. m. (C. W. T.), resulting in 7 deaths, injury to 74 persons, and property damage estimated at $675,000. These tornadoes were evidently a continuation of storms which occurred in Arkansas and Oklahoma earlier in the day and moved in a northeasterly direction across Missouri into Illinois, alternately lifting and descending along the path of progression. One tornado crossed into Illinois near Palmyra, Mo., about 10:20 p. m., and moved northeastward through the business district of Quincy in Adams County, continuing into Hancock and McDonough Counties. Most of the damage was caused at roof level of high buildings in Quincy; the tornado evidently did not reach the ground.

June brought the occurrence of a tornado in an area which rarely experiences one. In Jamestown, N. Y., on the 10th, a path 2 blocks wide and 1 mile long was cut through the west side of the city; although extensive destruction was caused in a populated district, no lives were lost. June 27 brought the occurrence of a series of tornadoes, which lowered as "funnels" from a parent cloud crossing Iowa and Illinois. The first struck the northeast edge of Davenport, Iowa, at 8 p. m.; five or six spirals were observed as the cloud crossed the Mississippi River into the area around Moline, Ill., but no important destruction occurred; major damage occurred near Hooppole about 9 p. m., in northern Bureau County between 10:15 and 10:30 p. m., and near LaSalle between 11 and 11:25 p. m.

On September 1 a tornado struck in the township of North Windham, Maine, at 5:30 p. m. (E. S. T.); this section of the country is seldom visited by a tornado.

A number of tornadoes were associated with hurricanes. A small tornado occurred near LaBelle, Fla., on June 23, at the time the Gulf hurricane of June 20–27 was crossing the Florida peninsula. On August 27, the hurricane that lashed the Texas coast from August 24–29 was located about 60 miles southwest of Houston; a tornado moving from southeast to northwest along a path about 75 yards wide struck the earth several times in a distance of about 22 miles, hitting the northern outskirts of Houston about 11:20 p. m. On September 17, at 7:30 a. m., a tornado struck Gourdin, S. C., 75 miles north-northeast of the center of the hurricane which was moving inland between Charleston and Savannah on that date.

Tornadoes that occurred during 1945 are summarized in Table 1; it shows the approximate monthly and annual number of tornadoes and the deaths, injuries, and property damage caused by them in the several States and the country as a whole. Material was derived from data on "Severe Local Storms" appearing in the MONTHLY WEATHER REVIEW and in monthly CLIMATOLOGICAL DATA of the various sections of the United States. A final and more complete report will appear in the UNITED STATES METEOROLOGICAL YEARBOOK, 1945.

TABLE 1.—*Tornadoes and probable tornadoes*

State [1]	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama:													
Number		8		1							1	1	11
Deaths		36		0							0	0	36
Injuries		376		0							2	0	378
Damage ($X1,000)		1,947.5		75.0							(4)	27.5	[3] 2,050.0
Arkansas:													
Number			2	1									3
Deaths			0	22									22
Injuries			0	(5)									(5)
Damage ($X1,000)			(4)	(5)									(5)
Florida:													
Number			1	2	1	2				1			7
Deaths			0	0	0	0				1			1
Injuries			0	8	0	0				4			12
Damage ($X1,000)			15.0	23.0	(6)	6.0				50.0			94.0
Georgia:													
Number		1		3								1	5
Deaths		1		7								0	8
Injuries		0		18								0	18
Damage ($X1,000)		10.0		190.0									200.0
Illinois:													
Number				1		4							5
Deaths				0		1							1
Injuries				25		94							119
Damage ($X1,000)				2,230.0		3,100.0							5,330.0
Indiana:													
Number			1		1	2	1		1				6
Deaths			0		0	0	0		0				0
Injuries			20		0	0	0		1				21
Damage ($X1,000)			1,000.0		150.0	21.0	1.0		150.0				1,322.0
Iowa:													
Number			3	2	11	1							17
Deaths			0	0	0	0							0
Injuries			0	1	9	0							10
Damage ($X1,000)			95.0	50.0	155.0	(6)							[3] 300.0
Kansas:													
Number			2	1	5	5		1	3				17
Deaths			0	0	0	0		0	0				0
Injuries			0	0	1	0		0	0				1
Damage ($X1,000)			27.0	0	103.0	150.0		6.0	6.0				292.0
Louisiana:													
Number			3	1		1							5
Deaths			0	4		0							4
Injuries			0	(7)		0							(7)
Damage ($X1,000)			(8)	265.0		40.0							305.0
Maine:													
Number									1				1
Deaths									0				0
Injuries									1				1
Damage ($X1,000)									7.5				7.5
Mississippi:													
Number		1	1									1	3
Deaths		5	0									3	8
Injuries		40	0									0	40
Damage ($X1,000)		300.0	6.0									(9)	306.0
Missouri:													
Number				3		1	1						5
Deaths				7		0	0						7
Injuries				74		5	0						79
Damage ($X1,000)				675.0		(4)	90.0						[3] 765.0
Montana:													
Number						1							1
Deaths						0							0
Injuries						0							0
Damage ($X1,000)						0							0
Nebraska:													
Number							1						1
Deaths													
Injuries													
Damage ($X1,000)													
New Jersey:													
Number							1						1
Deaths							0						0
Injuries							0						0
Damage ($X1,000)							50.0						50.0
New York:													
Number						1							1
Deaths						0							0
Injuries						10							10
Damage ($X1,000)						5,000.0							5,000.0
North Carolina:													
Number				1									1
Deaths				0									0
Injuries				(7)									(7)
Damage ($X1,000)				75.0									75.0
Ohio:													
Number									1				1
Deaths									0				0
Injuries									0				0
Damage ($X1,000)									(9)				(9)
Oklahoma:													
Number			4	7	1	1			1				14
Deaths			1	103	1	0			0				105
Injuries			11	750	(7)	3			0				[3] 764
Damage ($X1,000			[3] 125.0	4,000.0	(6)	50.0			375.0				[3] 4,550.0
Pennsylvania:													
Number					1			1	2				4
Deaths					0			0	0				0
Injuries					(7)			0	0				(7)
Damage ($X1,000)					100.0			(4)	40.0				[3] 140.0
South Carolina:													
Number					2	3			1				6
Deaths					1	0			1				2
Injuries					2	1			2				5
Damage ($X1,000)					25.0	1.9			100.0				126.9

See footnotes at end of table.

TABLE 1.—*Tornadoes and probable tornadoes*—Continued

State [1]	January	February	March	April	May	June	July	August	September	October	November	December	Annual
South Dakota:													
Number							1						1
Deaths							0						0
Injuries							1						1
Damage ($\times$1,000)							(4)						(4)
Texas:													
Number			12		1	3		1					17
Deaths			0		0	2		1					3
Injuries			15		2	10		15					42
Damage ($\times$1,000)			130.1		5.0	510.0		35.0					680.1
West Virginia:													
Number									1				1
Deaths									0				0
Injuries									0				0
Damage ($\times$1,000)									0				0
Wisconsin:													
Number			1	1	1				1				4
Deaths			0	1	0				0				1
Injuries			1	0	0				2				3
Damage ($\times$1,000)			6.0	100.0	(5)				25.0				131.0
Wyoming:													
Number						1							1
Deaths						0							0
Injuries						0							0
Damage ($\times$1,000)						(5)							(5)
United States:													
Number [8]		9	30	23	24	26	5	3	11	1	1	3	136
Deaths		42	1	144	2	3	0	1	1	1	0	3	198
Injuries		416	47	876	14	123	1	15	6	4	2	0	1,504
Damage ($\times$1,000)		2,257.5	1,404.1	7,683.0	538.0	8,878.9	141.0	41.0	703.5	80.0	(4)	27.5	21,724.5

[1] None reported for States not listed.
[2] Additional not included.
[3] Many.
[4] Several thousand.
[5] Considerable.
[6] Slight.
[7] A few.
[8] Corrected for boundary-crossing tornado.

METEOROLOGICAL AND CLIMATOLOGICAL DATA FOR DECEMBER 1945

AEROLOGICAL OBSERVATIONS

TABLE 1A.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidity in percent, obtained by radiosondes during December 1945*

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL

Altitude (meters) m. s. l.	Albany, N. Y. (93 m.)				Albuquerque, N. M. (1,620 m.)				Apalachicola, Fla. (5 m.)				Atlanta, Ga. (300 m.)				Big Spring, Tex. (774 m.)				Bismarck, N. Dak. (505 m.)				Boise, Idaho (868 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	1,004	−6.7	79	25	838	1.2	41	31	1,017	9.6	84	31	983	2.3	81	31	928	5.4	54	31	957	−12.3	85	31	918	−0.6	79
500	31	954	−7.0	77					31	959	10.2	66	31	959	2.8	74												
1,000	31	904	−8.3	74					31	903	8.8	49	31	901	2.6	62	31	903	8.1	44	31	897	−11.0	81	31	903	0.7	75
1,500	31	838	−9.2	65					31	850	7.9	44	31	847	2.8	54	31	850	6.6	38	31	840	−9.3	77	31	848	−1.6	73
2,000	31	785	−10.5	60	25	799	0.7	41	31	799	6.2	42	31	796	1.3	49	31	799	4.5	37	31	788	−9.5	71	31	796	−4.0	73
2,500	31	736	−12.4	59	25	751	−1.7	41	31	752	4.7	41	31	749	−0.6	46	31	752	2.3	36	31	738	−11.7	67	31	747	−6.2	68
3,000	31	689	−14.5	57	25	705	−4.6	43	31	707	2.6	42	31	703	−2.7	44	31	706	−0.2	37	31	691	−14.0	60	31	701	−9.1	71
4,000	31	603	−19.7	50	25	620	−9.6	42	31	624	−3.1	40	30	619	−7.4	46	31	622	−5.7	35	31	605	−20.1	59	31	615	−14.9	76
5,000	29	527	−25.1	----	25	544	−15.2	----	29	549	−9.1	40	29	544	−13.3	46	31	547	−11.9	----	31	528	−26.5	----	31	538	−21.3	----
6,000	29	458	−30.8	----	24	476	−21.1	----	29	482	−15.6	42	29	476	−19.5	----	31	479	−18.5	----	31	459	−33.5	----	31	469	−27.9	----
7,000	29	397	−37.4	----	24	415	−27.9	----	29	422	−22.4	----	29	416	−26.3	----	31	418	−25.5	----	30	397	−40.4	----	31	407	−35.0	----
8,000	28	343	−44.0	----	24	360	−35.1	----	29	367	−29.2	----	29	361	−33.4	----	31	364	−32.7	----	29	342	−47.0	----	29	352	−41.8	----
9,000	26	296	−48.5	----	24	312	−43.1	----	29	318	−36.5	----	29	312	−40.2	----	28	315	−39.7	----	24	295	−51.9	----	28	303	−48.1	----
10,000	21	254	−51.9	----	24	268	−50.4	----	29	275	−44.2	----	28	269	−47.1	----	25	271	−46.5	----	21	254	−55.1	----	29	261	−54.0	----
11,000	17	217	−54.2	----	24	229	−55.9	----	29	236	−51.6	----	28	231	−53.1	----	22	233	−52.2	----	19	217	−55.4	----	18	223	−58.3	----
12,000	13	186	−56.7	----	19	196	−59.6	----	29	202	−58.1	----	28	197	−57.6	----	20	199	−56.9	----	14	184	−52.8	----	7	190	−57.7	----
13,000	9	157	−55.0	----	12	167	−60.8	----	28	172	−62.4	----	16	168	−58.3	----	13	170	−60.0	----	11	157	−51.8	----				
14,000	6	134	−54.4	----	7	142	−61.1	----	17	146	−65.0	----	9	144	−59.4	----	10	144	−62.5	----	7	135	−50.5	----				
15,000									5	123	−66.0	----																

Altitude (meters) m. s. l.	Brownsville, Tex. (6 m.)				Buffalo, N. Y. (221 m.)				Burrwood, La. (2 m.)				Caribou, Maine (191 m.)				Charleston, S. C. (14 m.)				Ciudad Victoria, Mexico (335 m.)				Clovis, N. Mex. (1,306 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	1,016	15.2	82	31	989	−4.4	84	30	1,018	12.1	83	31	989	−10.4	91	30	1,016	5.8	83	17	976	17.6	66	30	867	0.7	56
500	31	959	16.0	74	31	955	−5.3	83	30	960	10.6	70	31	950	−10.7	90	30	958	6.8	70	17	958	17.6	65				
1,000	31	904	14.0	67	31	895	−7.5	78	30	903	9.3	53	31	890	−11.6	83	30	902	5.6	62	17	904	15.4	68				
1,500	31	852	12.5	56	31	839	−9.3	74	30	850	8.0	49	31	834	−11.6	76	30	848	4.1	50	17	852	13.2	72	30	847	4.1	46
2,000	31	802	10.5	54	31	786	−11.2	70	30	800	6.8	42	31	781	−12.6	71	30	797	2.3	50	17	803	11.7	68	30	796	3.0	37
2,500	31	756	8.6	47	31	737	−13.1	60	30	753	5.1	40	31	731	−14.4	64	30	749	0.8	49	17	756	10.5	62	30	749	0.8	36
3,000	31	711	5.6	45	31	689	−14.7	57	30	708	2.7	43	31	684	−16.9	63	30	704	−0.6	44	17	711	8.1	51	30	703	−2.3	37
4,000	31	628	0.0	32	29	604	−19.1	52	29	625	−2.8	37	31	598	−22.3	----	28	620	−5.6	44	17	630	1.9	----	30	619	−8.9	42
5,000	31	554	−5.7	----	28	527	−25.6	----	29	550	−8.8	----	31	521	−28.5	----	27	545	−11.4	47	17	555	−4.6	----	30	543	−14.5	43
6,000	31	486	−12.4	----	27	459	−31.5	----	29	483	−15.3	----	31	452	−35.1	----	25	478	−17.9	48	17	488	−11.3	----	30	475	−20.6	47
7,000	31	426	−19.5	----	26	398	−37.8	----	29	422	−22.2	----	31	391	−41.8	----	25	417	−24.6	----	17	428	−18.2	----	29	415	−27.8	----
8,000	31	372	−26.8	----	25	343	−43.8	----	29	368	−29.9	----	31	336	−47.6	----	23	363	−31.6	----	17	374	−25.4	----	29	360	−35.5	----
9,000	31	323	−34.7	----	21	296	−48.7	----	29	319	−37.4	----	30	289	−51.8	----	21	314	−38.8	----	17	325	−33.2	----	28	311	−43.0	----
10,000	31	279	−42.5	----	18	255	−52.0	----	28	276	−44.8	----	27	248	−54.5	----	20	271	−46.2	----	17	281	−40.9	----	28	268	−50.0	----
11,000	31	240	−50.0	----	15	219	−54.8	----	27	236	−52.3	----	25	213	−56.2	----	18	232	−52.0	----	17	242	−48.7	----	28	229	−55.1	----
12,000	29	205	−57.1	----	8	187	−56.1	----	27	202	−58.8	----	20	180	−53.8	----	16	199	−55.9	----	16	208	−55.7	----	28	196	−58.8	----
13,000	25	175	−61.9	----	6	160	−54.6	----	21	172	−61.9	----	14	154	−53.8	----	9	170	−58.7	----	16	177	−61.6	----	25	167	−59.9	----
14,000	23	148	−64.9	----					8	146	−65.8	----	7	132	−54.2	----	5	144	−60.2	----	11	151	−64.7	----	14	142	−59.8	----
15,000	14	126	−67.5	----																	9	127	−67.4	----	8	121	−61.5	----
16,000	5	106	−70.7	----																	7	107	−69.7	----				

Altitude (meters) m. s. l.	Denver, Colo. (1,616 m.)				Dodge City, Kans. (787 m.)				El Paso, Tex. (1,195 m.)				Ely, Nev. (1,908 m.)				Fort Worth, Tex. (211 m.)				Glasgow, Mont. (648 m.)				Grand Junction, Colo. (1,414 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	835	−2.3	57	28	925	−3.0	64	30	882	7.8	38	31	808	−4.4	77	31	994	5.8	63	30	939	−10.5	83	27	861	−3.1	69
500																	31	960	7.2	56								
1,000					28	901	0.4	54									31	903	6.0	53	30	897	−9.0	80				
1,500					28	846	0.2	47	30	851	8.4	37					31	849	4.5	44	30	841	−7.1	72	27	852	−2.6	67
2,000	31	796	−0.9	47	28	795	−1.6	45	30	800	5.5	39	31	799	−3.4	74	31	798	3.1	39	30	788	−8.2	66	27	800	−4.2	64
2,500	31	747	−3.9	47	28	746	−4.2	40	30	753	3.1	38	31	750	−4.2	64	31	751	1.1	36	30	739	−11.0	65	27	751	−5.5	63
3,000	31	700	−7.5	51	28	700	−7.4	41	30	707	0.6	33	31	704	−6.8	62	31	705	−1.4	32	30	692	−13.4	60	27	704	−8.0	65
4,000	31	615	−14.8	63	28	615	−13.5	50	30	624	−5.2	----	31	619	−11.3	54	31	621	−6.8	30	30	606	−19.2	62	27	618	−13.8	61
5,000	31	538	−22.1	----	28	538	−20.1	56	30	548	−11.2	----	31	542	−16.9	52	30	546	−13.6	33	29	529	−25.7	----	27	541	−19.5	52
6,000	31	469	−28.8	----	28	470	−26.2	----	30	480	−18.1	----	31	474	−23.7	----	30	478	−19.9	----	29	460	−32.1	----	26	472	−25.7	----
7,000	31	407	−35.5	----	28	408	−32.8	----	30	420	−25.3	----	30	412	−31.3	----	29	417	−26.8	----	27	398	−39.0	----	26	410	−33.0	----
8,000	24	353	−41.8	----	27	353	−39.2	----	29	364	−33.0	----	30	357	−38.6	----	29	362	−34.2	----	27	344	−46.0	----	26	355	−40.1	----
9,000	21	304	−49.0	----	25	304	−45.5	----	29	315	−40.7	----	29	308	−45.7	----	28	313	−41.4	----	25	295	−51.6	----	25	306	−47.1	----
10,000	16	262	−54.0	----	23	262	−51.3	----	27	272	−48.3	----	25	265	−52.3	----	26	270	−48.1	----	24	253	−54.6	----	24	263	−53.0	----
11,000	12	225	−57.9	----	21	224	−54.5	----	23	234	−55.0	----	22	226	−56.7	----	25	231	−54.4	----	19	217	−54.6	----	22	225	−55.5	----
12,000					19	191	−55.3	----	14	200	−58.8	----	15	193	−57.9	----	22	197	−58.9	----	13	186	−52.6	----	17	191	−55.8	----
13,000					17	163	−56.5	----	7	170	−60.0	----	10	165	−56.3	----	17	168	−59.5	----	9	158	−50.1	----	14	164	−55.4	----
14,000					14	140	−57.3	----									13	143	−61.1	----	6	136	−50.5	----	6	140	−57.2	----
15,000					6	120	−59.4	----									7	122	−63.2	----								
16,000																	6	104	−64.3	----								

TABLE 1A.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidity in percent, obtained by radiosondes during December 1945*—Continued

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL—Continued

Altitude (meters) m. s. l.	Great Falls, Mont. (1,128 m.)				Green Bay, Wis. (182 m.)				Greensboro, N. C. (273 m.)				Hatteras, N. C. (3 m.)				Havana, Cuba [1] (51 m.)				Huntington, W. Va. (172 m.)				[2]International Falls, Minn. (343 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	884	−4.3	68	30	994	−7.5	78	20	985	−0.2	81	26	1,017	6.1	81	---	---	---	---	31	998	−1.4	82	30	976	−14.0	90
500	---	---	---	---	30	954	−8.2	77	20	957	0.8	73	26	957	5.1	73	---	---	---	---	31	958	−1.8	81	30	956	−14.1	91
1,000	---	---	---	---	30	894	−8.9	69	20	899	−0.8	67	26	900	3.0	61	---	---	---	---	31	899	−3.7	80	30	895	−14.1	83
1,500	31	843	−3.0	64	30	838	−9.6	68	20	844	−2.1	60	26	846	1.8	52	---	---	---	---	31	844	−5.0	76	30	838	−12.6	70
2,000	31	791	−5.2	65	30	785	−10.8	65	20	792	−2.9	51	26	795	0.0	50	---	---	---	---	31	792	−5.7	69	30	785	−13.5	64
2,500	31	742	−8.6	69	29	736	−12.9	60	20	744	−4.9	47	26	747	−1.8	50	---	---	---	---	31	743	−7.4	64	30	735	−15.3	62
3,000	31	695	−11.8	67	28	688	−14.6	55	19	698	−7.3	---	26	701	−3.6	48	---	---	---	---	31	696	−9.1	61	30	687	−17.8	60
4,000	31	609	−17.6	68	28	603	−19.6	58	19	613	−12.7	---	26	617	−8.3	47	---	---	---	---	31	611	−14.0	60	30	600	−23.3	---
5,000	31	532	−24.2	---	28	526	−25.5	---	19	537	−17.6	---	26	541	−14.4	54	---	---	---	---	31	535	−19.6	57	29	523	−29.0	---
6,000	31	464	−30.9	---	28	458	−32.2	---	17	469	−23.9	---	26	474	−20.8	59	---	---	---	---	30	467	−26.2	---	29	454	−35.3	---
7,000	31	402	−37.9	---	27	396	−39.4	---	17	408	−30.1	---	26	413	−27.7	---	---	---	---	---	30	406	−32.4	---	28	392	−42.3	---
8,000	30	346	−45.2	---	27	342	−46.1	---	17	354	−37.5	---	26	358	−34.3	---	---	---	---	---	30	351	−39.0	---	28	338	−48.8	---
9,000	29	297	−51.2	---	25	294	−51.1	---	17	305	−44.5	---	26	310	−41.5	---	---	---	---	---	30	303	−45.6	---	25	290	−52.2	---
10,000	28	255	−55.4	---	25	252	−54.4	---	16	263	−50.8	---	26	267	−48.8	---	---	---	---	---	30	260	−51.8	---	24	249	−55.0	---
11,000	23	218	−56.1	---	21	215	−54.8	---	13	225	−55.9	---	25	229	−55.5	---	---	---	---	---	28	223	−55.5	---	19	213	−55.7	---
12,000	16	185	−54.3	---	19	183	−54.2	---	10	193	−57.9	---	22	195	−58.1	---	---	---	---	---	25	190	−56.6	---	15	182	−54.9	---
13,000	11	158	−52.5	---	16	156	−52.9	---	6	165	−58.9	---	16	167	−59.5	---	---	---	---	---	20	162	−56.5	---	10	156	−51.5	---
14,000	7	135	−54.7	---	12	133	−52.6	---	5	141	−61.1	---	8	142	−60.4	---	---	---	---	---	17	139	−57.3	---	6	134	−52.1	---
15,000	5	115	−55.8	---	9	114	−51.8	---	---	---	---	---	5	121	−62.4	---	---	---	---	---	12	118	−59.3	---	---	---	---	---

Altitude (meters) m. s. l.	Joliet, Ill. (178 m.)				Lake Charles, La. (5 m.)				Lander, Wyo. (1,632 m.)				Las Vegas, Nev. (574 m.)				Little Rock, Ark. (79 m.)				Louisville, Ky. (165 m.)				Mazatlan, Mexico (80 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	996	−6.7	84	30	1,018	9.5	80	30	834	−10.0	82	31	952	5.9	48	31	1,009	2.7	72	31	998	−1.2	77	26	1,005	21.9	76
500	31	956	−6.7	82	30	959	9.8	64	---	---	---	---	---	---	---	---	31	959	2.9	63	31	957	−2.5	79	26	958	22.0	45
1,000	31	896	−7.2	69	30	903	9.0	51	---	---	---	---	31	904	7.4	41	31	901	2.0	60	31	899	−3.8	74	26	904	19.8	14
1,500	31	840	−7.1	60	30	850	7.5	44	---	---	---	---	31	851	4.7	40	31	846	1.6	52	31	844	−4.2	64	26	853	16.4	38
2,000	31	788	−8.4	56	30	800	5.9	41	30	795	−5.0	62	31	800	2.2	40	31	795	−0.3	50	31	791	−4.8	59	26	803	13.6	34
2,500	31	739	−10.1	55	29	752	4.0	36	30	746	−6.9	55	31	752	0.0	42	31	747	−2.1	43	31	743	−6.7	54	26	757	10.3	34
3,000	30	692	−12.7	52	29	707	1.9	33	30	700	−9.9	55	31	706	−2.4	40	31	701	−4.5	41	31	696	−8.7	50	26	712	7.2	34
4,000	30	606	−17.7	55	29	624	−3.8	31	30	614	−16.9	62	31	621	−8.2	39	31	617	−9.4	38	31	611	−13.8	48	24	630	1.2	---
5,000	30	530	−23.6	---	29	594	−9.0	32	30	536	−23.3	---	31	545	−14.3	44	31	541	−15.7	---	31	535	−19.5	51	24	556	−5.1	---
6,000	30	462	−30.6	---	29	482	−15.4	---	29	467	−29.9	---	31	477	−21.4	---	31	474	−22.4	---	31	467	−25.8	---	24	489	−11.7	---
7,000	30	399	−37.4	---	29	422	−22.5	---	29	405	−36.9	---	31	416	−28.5	---	31	412	−29.4	---	30	407	−32.0	---	23	428	−18.8	---
8,000	30	345	−43.7	---	29	367	−29.3	---	28	350	−43.5	---	31	361	−35.6	---	31	357	−36.0	---	30	352	−39.0	---	22	374	−26.2	---
9,000	28	297	−48.8	---	29	318	−36.7	---	27	301	−49.1	---	31	312	−43.2	---	31	309	−42.6	---	29	304	−45.6	---	22	324	−33.9	---
10,000	25	255	−52.3	---	29	275	−44.3	---	24	259	−53.3	---	30	268	−50.5	---	30	266	−48.9	---	25	261	−51.6	---	22	280	−41.8	---
11,000	25	219	−54.5	---	28	236	−51.5	---	20	222	−55.5	---	29	230	−56.4	---	30	228	−54.1	---	19	224	−55.1	---	22	241	−49.7	---
12,000	21	188	−55.6	---	27	202	−57.2	---	13	189	−54.7	---	28	196	−60.1	---	26	195	−57.2	---	15	192	−56.9	---	20	207	−57.0	---
13,000	17	160	−55.6	---	24	172	−60.9	---	8	161	−53.0	---	19	167	−59.4	---	23	166	−57.7	---	9	165	−56.1	---	19	176	−63.7	---
14,000	10	137	−55.1	---	17	147	−63.5	---	5	138	−54.1	---	16	142	−59.8	---	12	142	−57.6	---	7	141	−57.0	---	14	149	−68.5	---
15,000	5	118	−56.6	---	13	124	−65.6	---	---	---	---	---	10	120	−60.7	---	6	122	−59.8	---	---	---	---	---	8	126	−72.9	---

Altitude (meters) m. s. l.	Medford, Oreg. (409 m.)				Merida, Mexico (27 m.)				Miami, Fla. (4 m.)				Nashville, Tenn. (180 m.)				North Platte, Nebr. (849 m.)				Oakland, Calif. (2 m.)				Ogden, Utah (1,355 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	30	968	5.4	84	31	1,012	23.1	73	31	1,018	17.8	88	31	996	1.4	78	31	917	−7.3	85	26	1,017	10.0	80	31	866	−2.3	74
500	30	958	5.1	83	31	959	20.7	69	31	961	16.6	82	31	958	0.4	74	---	---	---	---	26	959	8.4	72	---	---	---	---
1,000	30	900	3.6	79	31	905	17.6	73	31	906	13.6	78	31	900	−0.9	68	31	900	−4.7	75	26	902	5.9	66	---	---	---	---
1,500	30	846	1.5	77	31	853	14.2	77	31	853	11.3	71	31	845	−1.3	63	31	844	−4.1	64	26	848	3.2	60	31	851	−1.7	70
2,000	30	795	−1.2	73	31	804	11.6	66	31	803	9.5	57	31	793	−2.5	59	31	792	−5.3	61	26	797	0.8	56	31	798	−4.3	68
2,500	30	747	−4.1	71	31	757	9.8	51	31	756	7.5	49	31	745	−4.3	52	31	744	−7.2	59	26	749	−1.4	54	31	749	−7.7	69
3,000	30	700	−6.8	70	31	713	7.4	45	31	712	5.2	45	31	699	−6.5	46	31	697	−10.0	57	26	703	−4.1	50	31	702	−10.6	71
4,000	29	615	−12.8	56	30	631	2.2	---	31	629	0.3	42	29	614	−11.3	---	31	611	−16.2	61	26	618	−9.6	49	31	616	−15.9	70
5,000	29	539	−19.1	60	30	557	−3.7	---	31	554	−6.0	---	27	538	−17.6	---	31	534	−23.0	---	25	543	−16.2	58	31	538	−21.5	---
6,000	29	470	−26.2	---	29	490	−10.1	---	31	487	−12.2	---	25	471	−23.9	---	31	465	−30.0	---	24	474	−22.8	---	31	470	−28.1	---
7,000	28	409	−33.2	---	29	430	−16.9	---	31	427	−19.3	---	25	409	−30.9	---	30	404	−37.0	---	24	413	−29.8	---	30	407	−35.4	---
8,000	28	354	−40.4	---	29	375	−24.5	---	31	373	−26.6	---	24	355	−37.8	---	30	348	−43.3	---	23	357	−37.0	---	30	352	−42.2	---
9,000	27	305	−47.3	---	29	326	−32.2	---	30	323	−34.5	---	23	306	−44.6	---	29	300	−48.8	---	20	309	−43.8	---	28	303	−48.6	---
10,000	27	262	−53.6	---	29	283	−40.0	---	30	280	−42.2	---	23	263	−51.2	---	27	257	−52.7	---	19	265	−51.0	---	27	260	−53.4	---
11,000	26	224	−57.4	---	29	243	−47.9	---	29	240	−50.0	---	18	226	−55.6	---	21	220	−53.8	---	18	227	−56.6	---	22	223	−57.4	---
12,000	21	190	−57.4	---	29	209	−55.5	---	24	206	−57.2	---	13	193	−56.1	---	15	187	−53.8	---	12	194	−58.2	---	18	190	−56.4	---
13,000	14	162	−56.6	---	28	178	−62.3	---	19	175	−62.8	---	6	165	−54.5	---	9	161	−53.3	---	11	166	−59.3	---	15	162	−55.4	---
14,000	8	138	−56.9	---	23	151	−67.7	---	13	149	−65.4	---	---	---	---	---	---	---	---	---	---	---	---	---	11	138	−56.1	---
15,000	5	117	−57.7	---	16	128	−71.0	---	7	126	−68.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 1A.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidity in percent, obtained by radiosondes during December 1945*—Continued

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL—Continued

Altitude (meters) m. s. l.	Oklahoma City, Okla. (391 m.)				Omaha, Nebr. (308 m.)				Phoenix, Ariz. (339 m.)				Pittsburgh, Pa. (382 m.)				Portland, Maine (20 m.)				Rapid City, S. Dak. (981 m.)				St. Louis, Mo. (171 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	972	0.9	66	31	981	−6.0	80	31	978	7.8	60	31	971	−3.3	80	31	1,012	−6.7	82	31	901	−6.4	73	31	997	−3.0	78
500	31	959	1.8	64	31	957	−6.8	81	31	959	13.5	42	31	957	−3.7	80	31	952	−6.2	74					31	957	−3.2	76
1,000	31	901	2.3	57	31	898	−6.6	76	31	904	10.8	37	31	898	−6.0	81	31	892	−7.1	69	31	899	−6.2	73	31	898	−3.4	71
1,500	31	846	1.8	46	31	842	−5.9	71	31	851	7.7	36	31	842	−7.0	77	31	837	−8.3	64	31	844	−4.5	66	31	843	−3.7	65
2,000	31	795	0.7	41	31	790	−6.1	63	31	800	4.6	35	31	789	−8.7	74	31	784	−9.9	62	31	792	−6.0	67	31	791	−4.9	58
2,500	31	747	−1.6	38	31	741	−8.4	60	31	753	2.2	33	31	740	−10.0	64	30	735	−12.3	59	31	742	−8.8	71	31	742	−6.8	47
3,000	31	702	−4.3	40	31	694	−10.8	57	31	707	−0.3	34	31	693	−11.6	60	30	688	−14.9	56	31	696	−11.7	71	31	696	−9.3	47
4,000	31	617	−10.4	47	31	609	−16.5	54	31	623	−6.1	35	29	607	−16.4	55	27	602	−20.3	56	31	610	−18.1	76	30	611	−14.9	46
5,000	31	541	−16.5	45	31	532	−23.0	----	31	547	−12.1	35	29	531	−22.1	----	27	525	−26.0	----	31	532	−24.5	----	29	534	−20.8	46
6,000	29	473	−22.7	----	31	464	−29.9	----	31	480	−19.1	41	29	463	−28.4	----	27	457	−32.3	----	31	463	−31.5	----	29	466	−27.4	----
7,000	29	412	−29.5	----	31	402	−36.8	----	31	419	−26.8	----	29	402	−34.9	----	26	395	−38.7	----	31	401	−38.6	----	29	404	−34.3	----
8,000	28	357	−36.2	----	31	347	−43.3	----	30	363	−34.5	----	29	347	−40.7	----	26	341	−44.2	----	30	346	−45.6	----	28	350	−41.3	----
9,000	28	308	−42.8	----	31	299	−48.9	----	30	314	−42.1	----	28	299	−47.0	----	26	294	−48.8	----	30	297	−51.0	----	28	302	−47.6	----
10,000	28	266	−49.1	----	30	256	−52.4	----	29	270	−49.6	----	27	257	−51.5	----	20	252	−52.2	----	30	254	−53.8	----	27	259	−52.4	----
11,000	26	228	−54.3	----	28	219	−54.1	----	28	232	−56.2	----	25	220	−55.1	----	18	214	−53.9	----	21	218	−54.2	----	25	221	−55.0	----
12,000	22	195	−57.6	----	27	187	−54.5	----	24	198	−59.9	----	20	187	−55.2	----	14	183	−53.9	----	15	187	−54.2	----	19	189	−57.4	----
13,000	20	166	−58.4	----	21	160	−53.9	----	16	169	−60.8	----	13	160	−54.5	----	12	156	−53.9	----	7	159	−50.9	----	13	162	−56.5	----
14,000	16	142	−59.0	----	11	136	−52.7	----	5	143	−61.0	----	7	135	−54.0	----					5	137	−52.4	----	5	139	−57.8	----
15,000	9	120	−59.1	----	5	117	−52.9	----																				
16,000	8	103	−61.5	----																								
17,000	5	87	−62.2	----																								

Altitude (meters) m. s. l.	St. Paul, Minn. (225 m.)				San Antonio, Tex. (240 m.)				San Juan, P. R. (15 m.)				Santa Maria, Calif. (71 m.)				Sault Ste. Marie, Mich. (221 m.)				Spokane, Wash. (598 m.)				Swan Island, W. I. (10 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	990	−9.8	84	31	990	9.4	71	31	1,014	23.9	83	31	1,010	11.0	79	30	988	−7.6	87	31	945	−1.1	88	31	1,014	24.5	79
500	31	956	−10.9	85	31	960	10.2	64	31	959	20.7	83	31	960	11.4	64	30	953	−8.3	86					31	959	21.4	79
1,000	31	895	−10.7	81	31	904	8.9	55	31	905	17.4	83	31	904	9.3	57	30	893	−9.8	80	31	899	−1.8	86	31	905	17.9	79
1,500	31	839	−9.8	69	31	850	8.2	48	31	852	14.1	77	31	851	7.3	47	30	837	−11.7	72	31	844	−4.1	85	31	854	14.7	77
2,000	31	786	−10.4	70	31	800	6.3	43	31	804	11.7	64	31	800	4.9	42	30	784	−13.5	65	31	792	−5.8	81	31	804	12.4	69
2,500	31	737	−12.1	67	31	753	4.4	35	31	758	10.1	42	31	753	2.2	42	30	734	−15.4	65	31	743	−8.1	75	31	758	10.3	62
3,000	31	689	−14.5	63	31	707	2.4	28	31	713	7.8	----	31	707	−0.5	40	30	686	−17.8	63	31	696	−10.9	73	31	713	8.3	47
4,000	31	603	−20.1	58	31	624	−3.7	----	31	631	2.4	----	30	624	−6.0	40	30	600	−23.0	----	31	610	−17.1	72	31	632	3.2	37
5,000	31	526	−26.3	----	31	550	−9.1	----	31	557	−3.5	----	30	548	−12.2	45	30	522	−29.2	----	30	533	−23.6	----	31	557	−2.7	32
6,000	30	458	−33.0	----	31	482	−15.6	----	30	490	−9.2	----	30	480	−18.6	54	29	454	−35.6	----	30	464	−30.4	----	30	490	−8.6	32
7,000	30	396	−40.0	----	31	422	−22.3	----	30	430	−15.7	----	30	419	−25.9	----	29	392	−42.2	----	29	402	−37.4	----	28	431	−15.1	----
8,000	29	341	−46.5	----	31	367	−29.5	----	30	376	−23.0	----	30	364	−33.6	----	26	339	−47.2	----	28	347	−44.8	----	28	377	−21.7	----
9,000	28	294	−51.3	----	31	318	−37.0	----	30	327	−30.9	----	30	315	−41.4	----	20	294	−51.4	----	28	298	−51.2	----	28	328	−28.9	----
10,000	26	252	−54.0	----	30	275	−44.5	----	29	284	−39.0	----	30	271	−49.2	----	17	252	−53.6	----	27	256	−54.9	----	28	285	−36.7	----
11,000	25	216	−54.7	----	27	236	−51.8	----	28	244	−47.1	----	25	233	−55.9	----	14	217	−54.4	----	19	218	−55.6	----	27	245	−44.9	----
12,000	21	184	−54.6	----	26	202	−58.0	----	28	209	−55.4	----	22	199	−60.3	----	7	187	−56.8	----	13	186	−52.8	----	27	211	−53.2	----
13,000	13	157	−51.3	----	24	172	−61.5	----	21	179	−62.1	----	17	169	−61.1	----					9	160	−49.6	----	23	180	−61.1	----
14,000	13	135	−52.0	----	9	145	−61.8	----	10	152	−68.4	----	10	144	−62.1	----					8	137	−51.8	----	19	153	−67.4	----
15,000	6	116	−53.3	----	6	124	−64.5	----													6	117	−54.2	----	7	129	−72.9	----

Altitude (meters) m. s. l.	Tacubaya, Mexico (2,306 m.)				Tampa, Fla. (3 m.)				Tatoosh Island, Wash. (31 m.)				Toledo, Ohio (191 m.)				Washington, D. C. (25 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	774	14.4	52	31	1,018	14.0	82	31	1,008	6.3	87	30	994	−5.1	86	30	1,015	−0.1	74
500					31	960	13.6	74	31	951	4.3	79	30	955	−5.3	82	30	957	−2.0	70
1,000					31	904	11.6	63	31	895	1.4	76	30	896	−7.4	80	30	898	−4.2	72
1,500					31	852	10.0	58	31	841	−1.0	71	30	840	−8.7	70	30	843	−5.6	69
2,000					31	802	8.1	53	31	789	−3.6	68	30	788	−10.4	65	30	790	−6.5	64
2,500	31	756	14.0	50	31	755	5.7	52	31	740	−6.4	67	30	738	−11.8	56	30	742	−7.7	59
3,000	31	712	10.7	52	31	710	3.3	44	31	694	−9.3	65	30	691	−13.5	51	30	695	−9.6	58
4,000	31	631	2.5	66	31	627	−1.6	39	30	610	−15.2	60	30	603	−17.9	49	30	610	−14.7	60
5,000	31	557	−4.2	56	31	552	−7.6	42	30	533	−22.1	----	30	529	−23.7	----	30	534	−20.1	50
6,000	31	490	−10.1	38	31	484	−13.9	37	30	465	−28.6	----	30	461	−30.4	----	30	466	−26.7	----
7,000	31	430	−16.7	----	31	424	−20.8	----	28	404	−35.1	----	30	399	−37.0	----	30	405	−32.9	----
8,000	31	376	−23.8	----	31	370	−27.6	----	27	349	−42.2	----	29	345	−42.8	----	29	350	−39.7	----
9,000	31	326	−31.3	----	31	321	−35.0	----	24	302	−48.6	----	28	297	−48.2	----	28	302	−47.0	----
10,000	30	283	−39.1	----	30	278	−42.8	----	19	258	−54.4	----	28	255	−52.7	----	28	260	−53.0	----
11,000	29	244	−46.9	----	28	238	−50.7	----	14	222	−55.8	----	27	218	−54.0	----	27	222	−57.5	----
12,000	28	209	−54.7	----	22	204	−57.1	----	9	190	−55.4	----	23	186	−54.7	----	21	189	−57.1	----
13,000	23	178	−61.6	----	17	174	−62.8	----	7	163	−54.0	----	22	159	−54.6	----	15	161	−56.6	----
14,000	9	152	−66.3	----	11	148	−65.5	----	6	140	−54.3	----	15	135	−55.1	----	10	137	−57.6	----
15,000					5	126	−68.1	----					10	115	−53.8	----				
16,000													6	99	−56.8	----				

[1] Data not yet received.

NOTE.—All observations scheduled between 10 p. m. and midnight, E. S. T. (0300 and 0500, G. C. T.), except at Mazatlan and Merida, where they are taken near 9 p. m., E. S. T. (0200, G. C. T.).

"Number of observations" refers to pressure only. (In a few cases temperature or humidity data may be missing for one or more levels of some observations). Relative humidity data are not published for levels having a corresponding mean temperature below −20° C.

All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the values occurring below the operating range of the humidity element. For explanation of the adjustment see article entitled "Curve Method for Obtaining Monthly Means of Relative Humidity," p. 241, MONTHLY WEATHER REVIEW, December 1944.

None of the means included in these tables are based on less than 15 surface or 5 standard level observations.

Raob data for Havana, Cuba, will appear in a later issue.

TABLE 2A.—*Free-air resultant winds based on pilot balloon observations made near 5 p. m., E. S. T. (2200 G. C. T.) during December 1945. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second*

Altitude (meters) m. s. l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,630 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (512 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (150 m.)			Denver, Colo. (1,627 m.)			El Paso, Tex. (1,198 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	29	253	2.0	30	293	1.3	24	295	3.2	29	254	4.1	28	300	2.1	30	109	2.2	29	83	1.4	28	256	1.8	27	290	1.5	26	286	2.1	28	276	1.7	31	321	2.7	27	249	2.2
500							24	292	3.3										29	104	1.5	28	237	4.4	27	273	3.7	26	273	4.3	28	248	3.5						
1,000	29	240	3.5				24	283	4.6				27	300	3.8	30	125	2.8	24	193	1.5	23	243	5.8	25	289	5.8	22	278	8.8	25	247	4.6						
1,500	28	266	5.2				21	284	7.6	29	266	8.2	26	297	5.5	30	194	2.2	20	285	3.3	16	284	5.7	20	306	7.7	21	287	11.3	18	270	8.2				27	272	3.8
2,000	25	273	9.0	30	302	3.0	20	287	10.8	28	276	9.9	20	295	7.7	29	234	3.9	18	293	6.4	12	294	5.7	15	308	10.3	21	274	13.9	15	284	11.8	31	311	3.4	27	277	5.2
2,500	25	278	11.2	30	301	6.8	16	284	13.5	27	284	10.8	17	293	8.8	25	261	6.8	16	280	8.0				13	304	11.8	19	276	14.0	13	285	12.2	31	300	4.6	27	281	7.4
3,000	25	276	11.8	29	300	11.0	12	275	16.6	26	287	11.9	15	290	9.1	22	270	8.2	15	280	10.2				12	308	14.4	19	274	16.2	11	280	14.2	29	297	8.0	27	285	10.8
4,000	25	285	14.6	28	298	15.6				20	297	14.7	13	296	11.7	13	311	12.6	13	280	13.2				11	292	17.4	18	267	21.7				27	302	12.0	23	287	15.8
5,000	22	282	18.1	27	294	19.9				15	300	15.7	11	295	14.1	10	320	17.0	12	292	15.9				10	292	17.8	11	263	23.2				24	300	15.8	12	281	13.6
6,000	15	289	18.1	25	288	23.0				10	307	18.4	10	293	14.3				10	272	17.8							10	256	27.0				22	290	19.1			
8,000	11	286	23.6	19	293	24.6																											11	276	28.3			
10,000				12	295	24.2																																	

Altitude (meters) m. s. l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,413 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (573 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (194 m.)			New York, N. Y. (15 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	31	353	0.8	28	324	0.8	19	277	2.5	29	247	2.6	26	14	1.1	25	271	2.3	31	70	1.0	28	206	1.0	24	352	0.1	31	177	1.5	20	332	2.3	25	233	2.0	26	301	4.9
500							19	284	4.4				26	294	1.8	25	277	3.7				28	243	2.6	24	119	0.6	31	194	1.6	20	305	2.6	25	245	2.6	26	296	5.8
1,000							19	291	6.4	29	256	6.0	25	263	4.1	21	278	4.7	31	66	1.4	26	270	5.6	24	162	3.7	30	221	2.5	17	298	3.4	22	266	5.6	23	313	8.0
1,500				28	313	0.9	18	296	10.3	29	274	9.9	23	264	7.9	16	272	8.9	31	309	0.4	24	285	7.7	22	199	5.6	30	245	3.8	17	292	6.6	20	282	10.0	22	307	9.6
2,000	31	298	0.7	28	284	0.9	18	293	12.9	27	284	10.4	21	265	10.8	15	277	10.6	31	283	2.4	23	289	11.0	19	215	7.2	26	250	6.2	16	281	10.8	18	277	13.1	18	294	11.0
2,500	31	258	1.9	24	242	2.5	16	291	14.9	25	288	12.1	20	262	12.7	12	276	12.8	29	292	3.9	21	298	12.6	15	217	6.4	24	239	7.3	15	288	12.8	16	279	15.0	14	289	10.8
3,000	28	284	4.8	23	256	5.5	15	287	16.7	19	286	12.2	19	269	14.2				27	305	6.2	20	297	15.0	13	234	6.3	24	255	8.3	12	285	14.8	14	273	16.2			
4,000	23	269	10.0	20	286	9.8	11	285	23.7				12	269	15.6				27	295	10.1	15	285	20.2				22	254	10.9	10	277	17.3	10	273	21.8			
5,000	20	304	15.4	16	290	14.0													26	294	13.4	12	292	25.6				21	256	13.0									
6,000	19	297	17.8	12	292	17.8													23	301	15.5							21	258	14.7									
8,000	12	310	22.1																16	297	23.4							13	264	20.2									
10,000	11	307	25.4																																				

Altitude (meters) m. s. l.	Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Louis, Mo. (181 m.)			St. Paul, Minn. (225 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (15 m.)			Sault Ste. Marie, Mich. (225 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (603 m.)			Washington, D. C. (24 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	29	172	0.9	26	310	2.4	26	327	2.5	31	179	0.3	29	345	3.7	27	290	1.7	26	282	2.2	29	335	1.1	29	281	3.0	26	5	0.9	28	124	0.8	28	191	0.5	24	289	2.2
500	29	212	1.7	26	306	2.5	26	309	3.0	31	231	0.3				27	272	4.0	26	292	2.1	29	335	0.9	29	284	2.0	26	335	0.7	28	183	3.5				24	294	5.6
1,000	27	235	1.4	26	299	3.5	24	286	4.5	31	292	0.5	29	342	3.8	22	267	5.9	23	274	4.7	25	304	2.1	27	279	0.6	25	280	1.9	25	195	5.2	28	199	3.2	23	301	7.8
1,500	25	266	2.7	26	291	7.0	20	277	8.6	31	287	1.1	29	306	7.3	21	279	8.2	19	294	7.3	24	290	5.0	27	292	1.2	17	305	2.2	19	194	5.1	22	222	6.3	22	299	8.6
2,000	21	282	3.9	26	296	9.6	17	286	11.1	30	266	2.2	28	301	9.3	20	282	9.6	19	295	8.9	24	283	8.0	25	300	2.5	16	298	4.6	15	189	3.8	19	241	7.1	20	292	10.5
2,500	20	311	6.4	24	292	11.2	16	283	10.7	29	285	4.0	23	301	9.5	17	286	11.7	17	306	11.7	24	280	11.3	23	312	4.8	10	321	5.8	13	217	3.2	14	263	7.3	19	289	13.6
3,000	18	299	6.8	24	292	12.0	16	288	13.0	28	292	6.0	20	305	11.0	16	284	15.7	15	304	12.6	24	283	14.0	23	311	6.0				11	300	2.2	13	269	9.4	18	285	16.1
4,000	17	297	8.8	23	288	14.8	14	291	15.3	27	294	10.1	15	296	13.5	16	282	20.0				23	274	17.7	20	305	10.1										16	279	22.0
5,000	14	295	10.2	22	288	18.9	11	289	15.4	25	294	13.2	14	295	15.0	15	273	24.4				22	280	20.6	16	303	12.5										10	269	24.6
6,000	13	292	12.3	20	288	22.1	10	290	18.3	23	291	16.7				13	272	27.1				19	271	24.8	14	295	14.6												
8,000										17	285	20.9													11	289	18.3											
10,000										10	294	25.3																										

TABLE 3A.—*Maximum free-air wind velocities (m. p. s.) for different sections of the United States based on pilot balloon observations during December 1945*

Section	Surface to 2,500 meters (m. s. l.)					Above 2,500 to 5,000 meters (m. s. l.)					Above 5,000 meters (m. s. l.)				
	Maximum velocity	Direction	Altitude (m.) m.s.l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m.s.l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m.s.l.	Date	Station
Northeast [1]	47.3	NW.	2,097	13	Portland, Maine	50.0	WSW.	4,866	9	Toledo, Ohio	77.0	WNW.	9,262	12	Columbus, Ohio.
		WNW.	2,309	18	Richmond, Va										
East-Central [2]	36.8	W.	2,004	26	Lynchburg, Va	55.5	WNW.	3,851	21	Greensboro, N. C	80.8	SW.	7,382	31	Hatteras, N. C.
													12,496	8	
Southeast [3]	43.0	W.	2,189	26	Atlanta, Ga	57.6	W.	4,421	16	Charleston, S. C	68.0	W.	11,316	12	Charleston, S. C.
North-Central [4]	36.9	S.	1,188	24	Muskegon, Mich	44.4	NW.	4,630	20	St. Paul, Minn	72.2	N.	9,382	3	Rapid City, S. Dak.
Central [5]	34.8	NW.	2,437	16	Moline, Ill	44.0	NW.	5,000	31	Wichita, Kans	81.2	WSW.	7,018	14	Springfield, Ill.
South-Central [6]	39.1	N.	1,897	31	Brownsville, Tex	65.0	WNW.	4,500	13	Big Spring, Tex	83.0	W.	13,229	7	Waco, Tex.
Northwest [7]	35.8	WNW.	1,311	7	Billings, Mont	52.0	NW.	3,586	19	Butte, Mont	62.0	WNW.	14,051	1	Missoula, Mont.
West-Central [8]	44.8	SSW.	2,052	21	Oakland, Calif	62.2	WSW.	3,801	28	Reno, Nev	78.0	W.	8,287	8	Denver, Colo.
Southwest [9]	45.2	SE.	1,063	21	Santa Maria, Calif	58.2	W.	4,498	26	El Paso, Tex	71.5	WNW.	11,232	17	Raton, N. Mex.

[1] Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio.
[2] Delaware, Maryland, Virginia, West Virginia, Southern Ohio, Kentucky, eastern Tennessee, and North Carolina.
[3] South Carolina, Georgia, Florida, and Alabama.
[4] Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota
[5] Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.
[6] Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and western Tennessee.
[7] Montana, Idaho, Washington, and Oregon.
[8] Wyoming, Colorado, Utah, northern Nevada, and northern California.
[9] Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

AEROLOGICAL OBSERVATIONS FOR THE YEAR 1945

TABLE 1B.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidity in percent, obtained by radiosondes during year 1945*

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL

Altitude (meters) m. s. l.	Albany, N. Y. (93 m.)				Albuquerque, N. Mex. (1,620 m.)				Apalachicola, Fla. (5 m.)				Atlanta, Ga. (300 m.)				Big Spring, Tex. (774 m.)				Bismarck, N. Dak. (505 m.)				Boise, Idaho (868 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	358	1,005	7.1	80	354	837	14.7	34	365	1,017	19.6	84	357	983	15.2	76	363	926	17.6	52	357	955	4.4	73	360	916	11.2	57
500	358	956	6.5	74					365	961	18.6	69	357	961	15.9	68												
1,000	358	900	4.3	74					365	906	16.2	61	357	906	13.8	65	363	902	17.9	47	357	899	5.1	63	360	901	12.0	51
1,500	358	846	2.4	71					365	854	13.7	58	356	853	11.5	62	363	851	15.6	44	357	845	3.2	60	360	849	9.5	48
2,000	358	795	0.2	67	354	800	13.4	33	365	804	11.3	52	355	803	9.2	55	363	801	12.9	41	357	794	1.0	59	360	798	6.1	50
2,500	358	747	−2.0	62	354	753	9.9	35	364	758	8.9	46	354	756	6.7	50	363	755	9.8	39	357	746	−1.8	59	360	751	2.0	52
3,000	358	701	−4.3	59	354	709	6.1	39	364	713	6.4	46	354	711	4.2	46	363	710	6.7	37	357	700	−4.6	58	360	705	−1.1	55
4,000	354	616	−9.3	53	353	626	−1.4	44	359	631	1.0	....	347	629	−1.2	44	361	628	0.8	....	353	616	−10.4	57	358	622	−7.5	55
5,000	351	541	−15.1	....	349	552	−8.6	....	354	556	−4.9	....	341	554	−7.2	....	357	554	−6.6	....	349	540	−16.8	54	355	546	−14.1	54
6,000	347	473	−21.4	....	343	484	−15.5	....	350	489	−11.4	....	337	486	−13.6	....	350	486	−13.3	....	345	472	−23.5	....	354	478	−20.8	....
7,000	344	412	−28.0	....	336	424	−22.3	....	345	429	−18.0	....	334	426	−20.5	....	344	426	−20.1	....	341	411	−30.4	....	352	416	−28.0	....
8,000	341	358	−34.8	....	334	369	−29.4	....	344	374	−24.9	....	330	371	−27.7	....	335	372	−27.3	....	334	356	−37.8	....	347	362	−35.0	....
9,000	338	310	−41.2	....	332	320	−36.8	....	333	325	−32.3	....	321	322	−34.9	....	326	322	−34.5	....	321	307	−44.5	....	325	312	−42.1	....
10,000	331	267	−47.0	....	326	276	−43.8	....	323	282	−40.0	....	309	279	−42.1	....	317	279	−41.8	....	302	264	−49.9	....	304	269	−48.4	....
11,000	317	229	−51.7	....	318	238	−50.1	....	315	243	−47.7	....	292	240	−49.0	....	308	240	−48.7	....	280	227	−53.1	....	278	231	−53.4	....
12,000	288	196	−54.7	....	292	204	−54.8	....	306	208	−54.0	....	284	206	−54.7	....	292	206	−54.4	....	252	194	−54.0	....	226	197	−55.6	....
13,000	267	167	−56.4	....	253	174	−57.9	....	278	178	−59.4	....	256	176	−58.5	....	269	176	−58.5	....	205	166	−54.2	....	179	170	−56.0	....
14,000	201	143	−57.3	....	189	149	−60.6	....	233	151	−63.7	....	210	150	−61.8	....	216	150	−61.8	....	163	142	−54.8	....	....	....	....	....
15,000	136	122	−58.5	....	....	....	....	....	155	129	−67.3	....	....	....	....	....	124	128	−65.4	....	....	....	....	....	....	....	....	....

	Brownsville, Tex. (6 m.)				Buffalo, N. Y. (221 m.)				Caribou, Maine (193 m.)				Charleston, S. C. (14 m.)				Denver, Colo. (1,616 m.)				Dodge City, Kans. (787 m.)				El Paso, Tex. (1,195 m.)			
Surface	364	1,013	22.3	84	357	990	7.4	80	359	991	2.9	84	356	1,017	16.5	87	353	837	8.7	57	362	924	11.1	65	360	880	19.1	33
500	364	958	20.4	77	357	957	7.2	74	359	954	3.0	77	356	961	17.1	70												
1,000	364	904	18.6	64	357	900	4.9	72	359	897	1.2	73	356	906	14.6	65					362	901	12.6	57				
1,500	364	852	16.6	54	357	846	2.6	68	359	843	−0.8	73	356	854	12.1	62					362	849	11.2	51	360	850	18.8	31
2,000	364	803	14.6	47	357	795	0.2	64	359	791	−2.8	70	356	804	9.7	52	353	799	9.0	48	361	799	8.9	47	360	801	15.1	33
2,500	364	757	12.2	40	357	747	−2.0	60	357	743	−5.0	65	356	757	7.4	52	353	752	5.9	48	361	752	6.2	44	360	755	11.5	34
3,000	364	713	9.2	37	357	701	−4.3	56	357	696	−7.2	61	356	712	4.9	48	353	707	2.4	50	361	707	3.1	43	360	711	7.7	36
4,000	361	631	2.9	....	350	617	−9.5	53	357	612	−12.2	57	348	629	−0.5	....	353	623	−4.6	56	360	624	−3.3	43	360	629	0.5	40
5,000	358	557	−3.7	....	342	541	−15.3	....	349	536	−18.1	....	338	554	−6.3	....	350	548	−11.8	58	356	549	−10.0	42	358	554	−6.3	....
6,000	352	490	−10.3	....	327	474	−21.5	....	346	468	−24.4	....	334	487	−12.6	....	343	490	−18.8	....	356	482	−16.6	....	356	487	−13.2	....
7,000	351	430	−17.2	....	317	413	−28.4	....	343	407	−31.2	....	318	427	−19.4	....	336	419	−25.9	....	354	421	−23.6	....	348	426	−20.0	....
8,000	346	375	−24.4	....	308	358	−35.1	....	339	353	−38.2	....	303	373	−26.5	....	326	365	−33.2	....	352	366	−30.8	....	341	372	−27.3	....
9,000	342	326	−31.9	....	270	309	−41.9	....	333	305	−44.5	....	293	323	−33.9	....	315	315	−40.6	....	344	317	−38.0	....	333	323	−34.6	....
10,000	338	283	−39.4	....	243	266	−47.6	....	319	262	−49.6	....	277	280	−41.4	....	293	272	−47.2	....	334	274	−44.9	....	325	279	−42.0	....
11,000	330	244	−46.9	....	202	229	−51.8	....	296	225	−52.7	....	253	241	−48.4	....	271	234	−52.5	....	324	235	−51.0	....	316	240	−49.1	....
12,000	318	209	−53.9	....	160	195	−54.3	....	259	192	−54.1	....	225	207	−54.7	....	231	200	−55.5	....	307	202	−55.0	....	280	206	−54.4	....
13,000	289	178	−59.5	....	125	167	−55.4	....	198	164	−54.2	....	182	176	−58.7	....	187	171	−57.1	....	271	172	−57.6	....	243	176	−58.4	....
14,000	247	152	−64.2	....	....	....	....	....	148	141	−55.0	....	....	....	....	....	....	....	....	....	221	147	−59.7	....	179	151	−62.4	....
15,000	163	129	−68.4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	145	126	−62.3	....	....	....	....	....

	Ely, Nev. (1,908 m.)				Glasgow, Mont. (648 m.)				Grand Junction, Colo. (1,414 m.)				Great Falls, Mont. (1,128 m.)				Greensboro, N. C. (273 m.)				Hatteras, N. C. (3 m.)				Huntington, W. Va. (172 m.)			
Surface	365	809	6.6	61	352	938	5.2	64	353	857	12.8	48	362	885	7.5	55	350	986	12.6	80	307	1,018	16.5	84	356	998	10.6	83
500																	350	959	13.6	70	307	960	15.4	72	356	960	12.0	71
1,000					352	899	6.1	59									350	904	11.4	67	307	905	12.7	66	356	903	9.5	70
1,500					352	845	4.0	57	353	849	12.4	45	362	849	6.6	51	350	851	8.7	66	306	853	10.2	62	356	850	6.9	69
2,000	365	800	7.6	56	352	794	1.2	59	353	799	9.9	43	362	796	3.5	53	350	801	6.3	62	305	803	7.8	59	356	800	4.5	66
2,500	365	753	5.6	50	352	746	−2.0	62	353	752	6.4	46	362	748	0.0	57	350	754	3.7	53	304	750	5.4	54	356	752	2.2	61
3,000	365	708	1.9	53	351	700	−5.2	63	353	708	2.6	50	362	702	−3.6	61	349	708	1.2	53	301	710	2.8	52	356	706	−0.1	56
4,000	365	624	−4.8	55	346	616	−11.2	61	351	624	−4.9	56	362	618	−10.2	62	346	625	−4.1	47	295	627	−2.3	....	353	623	−5.2	50
5,000	364	549	−11.5	....	341	540	−17.5	....	350	549	−11.8	52	360	542	−16.7	....	342	550	−9.9	....	289	552	−8.1	....	351	548	−10.9	45
6,000	363	481	−18.4	....	334	472	−24.1	....	344	480	−18.7	....	357	473	−23.4	....	336	482	−16.4	....	285	485	−14.5	....	348	480	−17.2	....
7,000	359	420	−25.6	....	324	410	−31.0	....	344	420	−25.7	....	354	412	−30.6	....	335	422	−23.3	....	280	424	−21.3	....	347	420	−23.9	....
8,000	355	365	−32.6	....	316	355	−38.1	....	334	365	−33.0	....	346	357	−37.9	....	329	367	−30.6	....	272	370	−28.3	....	342	365	−30.9	....
9,000	340	316	−39.9	....	307	307	−44.8	....	322	316	−40.2	....	336	308	−44.7	....	320	318	−37.8	....	261	321	−35.6	....	341	316	−38.0	....
10,000	320	273	−46.9	....	286	264	−50.0	....	310	272	−46.8	....	324	265	−50.4	....	306	275	−44.9	....	248	277	−42.9	....	335	273	−44.8	....
11,000	293	234	−52.6	....	255	226	−52.9	....	281	234	−52.0	....	297	227	−54.1	....	290	236	−51.3	....	228	238	−50.3	....	326	235	−51.0	....
12,000	255	201	−56.5	....	213	194	−53.7	....	245	200	−55.0	....	248	194	−55.2	....	271	202	−56.2	....	197	204	−55.5	....	312	201	−55.4	....
13,000	....	....	....	....	172	167	−53.4	....	190	171	−56.8	....	206	166	−55.5	....	231	172	−59.5	....	172	174	−59.1	....	268	171	−58.2	....
14,000	....	....	....	....	134	143	−54.1	....	136	146	−58.7	....	151	143	−55.8	....	191	146	−62.1	....	135	149	−62.1	....	220	146	−60.1	....
15,000	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	162	125	−62.2	....

TABLE 1B.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidity in percent, obtained by radiosondes during year 1945*—Continued

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL—Continued

Altitude (meters) m. s. l.	International Falls, Minn. (343 m.)				Joliet, Ill. (178 m.)				Lake Charles, La. (5 m.)				Little Rock, Ark. (79 m.)				Louisville, Ky. (166 m.)				Mazatlan, Mexico (79 m.)				Medford, Oreg. (409 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	362	973	2.0	79	362	995	7.7	82	359	1,016	19.0	86	363	1,007	15.5	78	364	998	11.9	76	343	1,004	23.9	79	356	969	14.5	60
500	362	955	2.2	76	362	957	8.2	73	359	960	18.1	72	363	959	15.3	67	364	958	12.0	68	343	957	23.4	54	356	959	14.3	59
1,000	362	897	0.3	73	362	901	6.4	69	359	905	15.9	63	363	903	12.9	66	364	903	9.6	67	343	904	22.0	45	356	903	11.9	58
1,500	362	843	−1.4	70	362	847	4.6	63	359	853	13.8	58	363	851	10.9	61	364	850	7.3	64	343	853	19.4	44	356	850	8.6	61
2,000	362	791	−3.2	66	362	796	2.6	58	359	804	11.6	51	362	801	8.6	55	364	799	5.2	58	343	804	16.5	40	356	800	5.3	63
2,500	362	743	−5.5	63	362	749	0.6	53	358	757	9.4	46	362	754	6.4	49	364	752	3.0	53	343	758	13.5	39	356	753	2.3	61
3,000	362	696	−7.8	59	360	703	−2.0	50	358	712	6.9	42	362	709	3.8	45	364	706	0.5	49	343	714	10.3	42	356	707	−0.5	57
4,000	361	612	−13.3	56	357	619	−7.5	47	355	630	1.2	----	359	627	−1.8	40	358	623	−4.8	46	328	633	3.6	----	351	623	−6.4	52
5,000	357	536	−19.2	54	353	544	−13.4	----	350	556	−4.9	----	357	552	−8.1	41	354	548	−10.7	----	318	558	−3.1	----	345	548	−12.4	49
6,000	356	468	−25.6	----	350	476	−19.8	----	347	489	−11.5	----	354	484	−14.7	----	350	481	−17.0	----	312	491	−9.6	----	331	480	−19.0	----
7,000	350	407	−32.4	----	346	416	−26.6	----	347	428	−18.4	----	353	421	−21.6	----	346	420	−23.8	----	297	431	−16.3	----	324	419	−26.2	----
8,000	349	352	−39.1	----	338	361	−33.8	----	343	374	−25.6	----	348	369	−28.8	----	336	365	−31.0	----	285	377	−23.5	----	310	364	−33.9	----
9,000	342	304	−45.1	----	328	312	−40.6	----	340	325	−32.9	----	345	320	−36.0	----	315	317	−38.2	----	275	328	−31.1	----	296	315	−41.4	----
10,000	331	261	−49.8	----	313	269	−47.0	----	331	281	−40.4	----	343	277	−43.2	----	296	274	−45.0	----	260	284	−38.8	----	292	271	−48.2	----
11,000	301	224	−52.4	----	287	231	−51.8	----	316	242	−47.9	----	334	238	−50.0	----	273	235	−51.2	----	226	245	−46.4	----	280	233	−53.8	----
12,000	272	192	−53.0	----	260	197	−54.6	----	293	208	−54.3	----	318	204	−55.1	----	238	201	−55.4	----	----	----	----	----	248	199	−56.7	----
13,000	225	164	−52.5	----	218	169	−56.1	----	268	177	−59.4	----	287	174	−58.6	----	199	173	−58.1	----	----	----	----	----	206	169	−57.4	----
14,000	178	141	−53.3	----	169	145	−57.8	----	212	152	−63.6	----	224	148	−61.4	----	----	----	----	----	----	----	----	----	160	145	−57.9	----
15,000	----	----	----	----	----	----	----	----	143	129	−67.2	----	148	126	−64.1	----	----	----	----	----	----	----	----	----	101	124	−59.5	----

Altitude (meters) m. s. l.	Merida, Mexico (22 m.)				Miami, Fla. (4 m.)				Nashville, Tenn. (180 m.)				North Platte, Nebr. (849 m.)				Oakland, Calif. (2 m.)				Ogden, Utah (1,355 m.)				Oklahoma City, Okla. (391 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	341	1,011	26.2	71	364	1,018	22.3	83	365	996	14.5	74	355	918	8.2	73	360	1,016	14.0	75	361	864	9.4	60	350	969	14.1	72
500	341	958	23.6	68	364	961	20.6	85	365	959	14.0	68	----	----	----	----	360	958	13.2	63	----	----	----	----	350	957	14.6	68
1,000	339	905	20.7	68	364	907	17.7	73	365	904	11.5	66	355	901	8.3	69	360	903	13.1	48	----	----	----	----	350	902	13.4	61
1,500	339	854	17.5	68	361	856	15.2	66	365	851	9.2	63	355	848	7.3	60	360	850	11.0	41	361	849	10.4	52	349	850	11.7	56
2,000	339	805	14.5	65	364	806	13.0	58	365	801	7.0	57	355	798	5.8	55	360	800	8.3	38	361	799	7.6	50	349	800	9.7	48
2,500	339	758	11.8	57	364	760	10.6	54	364	754	4.8	51	355	750	3.6	52	360	753	5.5	37	361	752	3.9	54	349	754	7.1	43
3,000	337	714	9.6	----	364	715	8.2	49	364	708	2.2	49	355	705	0.6	51	360	708	2.6	32	361	707	0.2	57	348	708	4.3	40
4,000	331	633	4.2	----	360	633	2.8	----	349	625	−3.0	----	355	622	−5.5	51	357	625	−3.9	----	300	623	−6.5	58	343	626	−1.7	----
5,000	316	559	−1.9	----	356	558	−3.1	----	343	550	−9.2	----	351	547	−11.8	49	356	549	−10.5	----	360	547	−13.1	53	337	551	−8.2	----
6,000	304	492	−8.3	----	353	491	−9.2	----	336	483	−15.7	----	351	479	−18.3	----	354	482	−17.1	----	360	479	−19.9	----	332	484	−14.9	----
7,000	298	432	−15.0	----	349	432	−15.8	----	330	422	−22.6	----	349	418	−25.2	----	350	421	−24.2	----	358	418	−27.0	----	329	423	−22.0	----
8,000	294	378	−22.1	----	343	377	−22.9	----	321	368	−29.7	----	346	363	−32.3	----	346	366	−31.5	----	356	363	−34.3	----	321	369	−29.3	----
9,000	288	329	−29.6	----	337	328	−30.3	----	315	319	−37.0	----	339	315	−39.3	----	336	317	−38.8	----	348	313	−41.4	----	315	320	−36.6	----
10,000	282	285	−37.3	----	332	285	−37.9	----	302	276	−44.0	----	329	271	−45.6	----	329	274	−45.6	----	343	271	−47.9	----	307	276	−43.8	----
11,000	276	246	−45.0	----	321	245	−45.6	----	288	237	−50.6	----	313	233	−50.5	----	310	235	−51.2	----	326	232	−53.2	----	296	238	−50.4	----
12,000	266	211	−52.4	----	305	211	−53.0	----	261	203	−55.4	----	291	200	−53.6	----	274	202	−55.0	----	299	199	−56.3	----	272	203	−55.6	----
13,000	227	181	−59.1	----	278	180	−59.5	----	225	173	−58.4	----	278	171	−54.8	----	221	172	−57.0	----	256	170	−57.3	----	234	174	−58.7	----
14,000	153	154	−65.6	----	234	153	−64.7	----	----	----	----	----	220	147	−56.3	----	----	----	----	----	211	145	−58.7	----	185	148	−61.1	----
15,000	----	----	----	----	141	130	−69.1	----	----	----	----	----	----	----	----	----	----	----	----	----	126	124	−59.8	----	124	126	−63.5	----

Altitude (meters) m. s. l.	Omaha, Nebr. (308 m.)				Phoenix, Ariz. (339 m.)				Pittsburgh, Pa. (382 m.)				Portland, Oreg. (20 m.)				Rapid City, S. Dak. (981 m.)				St. Louis, Mo. (171 m.)				St. Paul, Minn. (225 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	348	979	10.4	72	365	972	20.5	44	357	972	9.7	75	353	1,013	5.5	83	358	902	6.3	68	362	996	11.8	75	364	988	6.4	74
500	348	957	10.1	68	365	955	23.3	32	357	959	9.6	73	353	956	6.6	69	----	----	----	----	362	958	11.0	69	364	956	5.6	70
1,000	348	901	8.3	65	365	901	20.5	30	357	902	7.5	70	353	899	4.7	67	358	900	6.6	67	362	902	9.2	66	364	899	3.6	69
1,500	348	848	6.6	63	365	850	16.7	32	357	849	5.0	68	353	845	2.6	67	358	847	6.8	56	361	840	7.4	63	364	845	2.0	64
2,000	348	797	4.6	58	365	801	12.8	35	357	798	2.6	65	353	794	0.4	64	358	796	4.0	57	361	799	5.5	56	364	794	0.0	60
2,500	348	750	2.3	53	365	754	8.9	37	357	750	0.2	60	351	746	−1.7	61	358	749	1.0	59	361	751	3.4	51	364	746	−2.1	54
3,000	347	704	−0.5	51	365	710	5.4	37	357	704	−2.0	56	351	700	−4.2	58	358	703	−2.1	59	361	706	0.7	50	364	700	−4.6	52
4,000	344	621	−6.2	49	363	627	−1.4	37	352	620	−7.2	52	345	616	−9.4	55	356	619	−8.4	59	358	623	−5.0	47	359	616	−10.2	51
5,000	342	546	−12.5	48	357	552	−8.0	----	350	545	−12.7	----	342	541	−15.3	49	353	544	−14.9	----	352	547	−11.2	47	356	540	−16.3	----
6,000	342	478	−19.1	----	355	485	−14.8	----	348	477	−18.9	----	340	473	−21.5	----	351	475	−21.7	----	349	480	−17.7	----	353	472	−22.8	----
7,000	338	417	−26.1	----	352	424	−21.9	----	346	417	−25.6	----	335	412	−28.3	----	345	414	−28.8	----	342	419	−24.7	----	352	411	−29.8	----
8,000	335	362	−33.2	----	346	369	−29.3	----	341	362	−32.4	----	331	358	−35.1	----	340	359	−36.1	----	334	364	−31.8	----	345	357	−36.8	----
9,000	335	314	−40.1	----	341	320	−36.6	----	335	313	−39.1	----	317	309	−41.6	----	332	310	−43.1	----	328	316	−39.0	----	342	308	−43.5	----
10,000	326	271	−46.3	----	328	277	−43.6	----	330	271	−45.4	----	305	266	−47.3	----	322	267	−49.0	----	313	273	−45.8	----	332	265	−49.2	----
11,000	320	232	−51.6	----	312	238	−50.2	----	320	232	−50.9	----	283	229	−51.9	----	291	229	−53.1	----	294	234	−51.6	----	325	227	−52.8	----
12,000	286	199	−55.0	----	272	204	−55.2	----	294	199	−54.4	----	253	196	−55.0	----	249	196	−55.1	----	262	200	−55.8	----	298	194	−54.8	----
13,000	250	170	−56.5	----	224	175	−58.5	----	250	170	−55.5	----	213	167	−56.3	----	207	167	−55.6	----	211	171	−57.9	----	263	166	−55.0	----
14,000	182	146	−58.0	----	169	149	−60.8	----	198	145	−58.1	----	151	143	−57.2	----	155	143	−57.0	----	134	146	−59.3	----	213	142	−55.7	----
15,000	130	125	−59.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	150	121	−56.7	----

TABLE 1B.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidity in percent, obtained by radiosondes during year 1945*—Continued

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL—Continued

Altitude (meters) m. s. l.	San Antonio, Tex. (240 m.)				San Juan, P. R. (15 m.)				Santa Maria, Calif. (71 m.)				Sault Ste Marie, Mich. (221 m.)				Spokane, Wash. (598 m.)				Swan Island, W. I. (10 m.)				Tacubaya, Mexico (2,306 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	362	987	19.8	72	362	1,014	24.7	83	365	1,008	12.3	82	349	989	2.8	84	362	944	10.4	66	362	1,013	25.5	82	362	774	16.0	57
500	362	957	19.7	67	362	960	21.4	81	365	958	13.1	71	349	955	3.5	76					362	958	22.3	82				
1,000	362	904	17.3	66	362	906	18.2	79	365	903	13.9	50	349	898	1.6	71	362	900	9.1	60	362	905	19.4	75				
1,500	362	852	15.0	61	362	854	15.3	74	365	851	12.1	44	349	844	−0.6	68	362	847	5.7	62	362	854	16.5	69				
2,000	362	803	13.0	51	361	805	12.9	64	365	801	9.4	39	349	792	−2.6	62	362	796	2.4	63	362	804	13.9	62				
2,500	362	756	10.6	43	361	758	10.9	52	364	754	6.6	33	349	744	−4.7	58	362	748	−1.0	64	362	758	11.9	54	362	757	15.0	56
3,000	362	712	8.0	37	361	714	8.6	----	364	709	3.6	32	349	697	−7.1	55	362	702	−4.3	63	361	714	9.3	46	362	713	11.5	57
4,000	360	630	1.8	----	358	632	3.4	----	359	626	−2.5	----	347	613	−12.2	----	361	618	−10.3	59	361	632	4.1	----	362	632	4.0	66
5,000	359	556	−4.6	----	349	558	−2.3	----	357	551	−9.0	----	345	537	−18.1	----	356	542	−16.6	----	358	558	−1.7	----	361	558	−2.7	65
6,000	358	489	−11.2	----	344	491	−8.5	----	354	483	−15.7	----	342	469	−24.5	----	355	474	−23.2	----	354	492	−7.8	----	351	491	−8.6	59
7,000	356	429	−18.0	----	341	432	−15.1	----	353	423	−22.9	----	339	408	−31.5	----	354	412	−30.1	----	351	432	−14.3	----	344	431	−14.7	----
8,000	353	374	−25.2	----	334	379	−22.2	----	347	368	−30.3	----	331	354	−38.3	----	351	358	−37.3	----	345	378	−21.1	----	336	377	−21.7	----
9,000	351	325	−32.7	----	330	328	−29.6	----	339	319	−37.7	----	313	305	−44.6	----	345	309	−44.3	----	343	329	−28.4	----	330	328	−29.1	----
10,000	347	281	−40.2	----	320	285	−37.2	----	331	275	−44.8	----	300	263	−49.5	----	330	265	−50.3	----	339	286	−36.2	----	319	285	−36.6	----
11,000	340	242	−47.6	----	315	246	−44.9	----	313	237	−51.2	----	274	226	−52.5	----	297	228	−54.1	----	332	247	−44.2	----	306	246	−44.5	----
12,000	328	208	−54.2	----	305	211	−52.6	----	295	203	−56.1	----	244	193	−53.8	----	256	195	−55.0	----	329	212	−52.2	----	268	212	−52.1	----
13,000	310	177	−59.0	----	279	180	−59.7	----	260	173	−58.6	----	209	165	−53.6	----	204	166	−54.8	----	309	181	−59.9	----	185	181	−59.2	----
14,000	247	151	−62.9	----	227	153	−66.3	----	221	147	−60.8	----	179	142	−54.5	----	160	143	−54.9	----	272	154	−66.4	----				
15,000	178	128	−66.8	----																	179	130	−71.9	----				

Altitude (meters) m. s. l.	Tampa, Fla. (3 m.)				Tatoosh Island, Wash. (31 m.)				Toledo, Ohio (191 m.)				Washington, D. C. (25 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	335	1,018	20.2	82	365	1,012	9.0	87	361	994	8.0	80	363	1,015	12.8	73
500	335	961	19.6	73	365	957	7.7	77	361	957	8.4	72	363	959	11.2	66
1,000	335	907	17.1	67	365	900	5.7	71	361	901	6.1	70	363	903	8.8	65
1,500	334	855	14.5	64	365	847	3.4	67	361	847	3.9	66	363	850	6.4	64
2,000	334	806	11.8	60	365	796	0.9	61	361	796	1.9	61	363	799	4.0	61
2,500	333	759	9.4	55	365	748	−1.7	56	361	748	−0.3	56	363	752	1.7	57
3,000	333	714	6.9	49	365	702	−4.5	53	361	703	−2.7	53	362	706	−0.8	53
4,000	331	632	1.5	----	360	617	−10.2	51	357	619	−8.0	49	361	622	−6.0	49
5,000	326	557	−4.6	----	356	541	−16.5	----	351	543	−13.9	40	360	547	−11.7	43
6,000	321	490	−10.8	----	350	473	−23.0	----	349	476	−20.3	----	356	479	−18.1	----
7,000	318	430	−17.4	----	344	412	−29.8	----	346	415	−27.0	----	354	419	−24.7	----
8,000	308	375	−24.6	----	335	358	−37.0	----	340	360	−33.8	----	347	364	−31.8	----
9,000	302	326	−32.1	----	314	309	−43.7	----	333	312	−40.5	----	337	315	−38.8	----
10,000	289	283	−39.7	----	280	266	−49.9	----	321	269	−46.6	----	320	272	−45.6	----
11,000	271	243	−47.3	----	232	229	−53.7	----	308	231	−51.5	----	308	234	−51.6	----
12,000	255	209	−54.3	----	196	195	−54.9	----	287	198	−54.4	----	281	200	−55.6	----
13,000	225	178	−60.3	----					248	169	−55.7	----	238	171	−58.2	----
14,000	179	152	−64.9	----					198	144	−57.1	----	181	146	−60.7	----
15,000	104	128	−69.3	----					149	123	−58.3	----				

NOTE.—All data for Table 1 and Table 2 are based on observations for 12 months. Data are not published for any level where observations were missing for more than 1 month in the same season or more than 2 months during the year. At some stations the data for higher levels were not available during 1 or 2 months.

TABLE 2B.—*Free-air resultant winds based on pilot balloon observations made near 5 p. m., E. S. T. (2200 G. C. T.) during year 1945. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second*

Altitude (meters) m. s. l.	Abilene, Tex. (534 m.)			Albuquerque, N.Mex. (1,630 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (512 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (150 m.)			Denver, Colo. (1,627 m.)			El Paso, Tex. (1,198 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	350	158	2.3	364	242	2.4	333	264	1.8	352	269	1.8	353	287	2.2	355	321	2.0	354	125	4.5	330	254	3.5	337	242	1.4	342	181	1.0	339	256	1.1	356	9	1.3	350	238	2.5
500							333	266	2.0										354	136	5.4	330	251	5.2	337	232	3.5	342	206	2.6	339	245	2.7						
1,000	350	186	3.2				326	262	2.6				349	291	3.2	355	316	2.1	309	153	4.3	293	250	6.9	320	252	5.0	320	244	3.1	309	247	4.2				350	238	2.9
1,500	339	211	3.6				311	269	3.7	352	266	4.0	323	288	4.4	355	292	2.4	260	175	3.0	245	257	7.8	283	267	6.6	303	268	4.3	284	258	6.0						
2,000	319	233	5.0	364	242	3.0	288	274	5.1	344	276	5.2	289	287	6.4	340	277	3.6	238	214	2.0	206	266	8.4	234	276	8.6	284	274	6.0	243	268	7.4	356	360	1.3	350	245	3.2
2,500	297	245	6.3	361	253	3.6	247	279	6.2	330	278	6.8	257	286	8.2	320	273	4.6	222	233	2.0				197	281	9.9	265	276	6.9	203	271	8.8	341	309	1.2	345	252	4.0
3,000	276	255	7.6	356	263	4.8	215	277	6.9	306	278	8.5	238	285	9.6	293	270	5.4	210	251	2.5				148	284	11.2	248	276	7.9	165	279	10.0	322	279	2.8	334	257	5.6
4,000	253	269	9.7	334	272	7.8	148	282	8.6	256	285	11.0	194	288	12.5	238	272	7.1	186	271	3.4							215	274	10.2				300	282	6.9	292	259	9.1
5,000	209	273	12.5	316	272	10.8				216	281	12.7	148	288	14.2				174	270	4.7							159	274	10.7				259	284	10.7	213	259	11.8
6,000				293	270	13.0				180	282	13.5							160	265	5.9													222	282	13.5			
8,000				242	268	14.8																																	
10,000				182	268	16.8																																	

Altitude (meters) m. s. l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,413 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (573 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (194 m.)			New York, N. Y. (15 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	364	267	0.9	357	304	1.6	322	238	1.6	341	275	2.2	350	99	1.9	335	235	1.9	365	184	0.6	335	191	1.1	342	308	1.2	361	129	3.0	323	195	1.1	341	241	1.4	330	255	1.9
500							322	243	2.6				349	153	1.2	335	242	2.6				335	217	2.1	342	305	1.3	361	126	3.8	322	208	2.0	341	235	1.8	328	262	3.9
1,000							316	250	3.8	341	271	4.0	338	230	1.9	301	248	4.4	364	186	1.3	310	235	2.8	342	279	1.0	356	128	2.5	281	245	1.6	318	238	3.4	311	276	5.8
1,500				357	301	1.9	303	265	4.8	339	275	5.6	326	257	3.6	269	260	6.2	363	209	1.7	293	254	4.2	336	247	2.0	343	137	0.8	250	287	2.0	292	250	4.6	300	282	7.6
2,000	364	259	1.1	357	284	2.4	284	275	6.6	317	276	6.3	308	264	4.7	228	267	7.6	358	228	2.4	256	270	5.7	308	243	2.8	315	260	0.6	221	287	3.4	272	258	5.9	242	283	8.8
2,500	363	256	2.1	348	259	3.2	250	282	7.9	278	277	7.9	283	267	5.5	186	276	9.1	352	239	3.2	237	274	6.5	270	252	2.6	304	260	0.8	190	289	4.6	259	264	7.2	207	286	9.5
3,000	348	257	2.9	338	250	4.6	227	283	9.5	225	279	8.8	258	271	6.3				337	251	3.9	200	279	7.4	245	260	2.7	292	265	1.3	149	282	4.8	236	269	8.1			
4,000	294	269	4.7	282	259	6.4	191	287	12.1				206	272	6.8				321	269	5.6	168	286	9.3				238	257	3.1				188	271	10.3			
5,000	249	277	7.3				144	286	13.3				165	277	8.4				295	274	7.4	138	286	12.4				199	262	4.6									
6,000	206	277	9.3																271	279	8.4							184	268	6.1									
8,000	150	274	11.1																198	278	11.5																	
10,000																			135	271	12.3																	

Altitude (meters) m. s. l.	Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Louis, Mo. (181 m.)			St. Paul, Minn. (225 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (15 m.)			Sault Ste. Marie, Mich. (225 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (603 m.)			Washington, D. C. (24 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	357	271	3.8	324	184	2.1	347	252	0.8	364	253	1.0	351	352	2.4	336	233	1.1	345	257	1.3	352	128	1.6	341	274	3.7	336	283	2.3	339	234	1.7	353	226	1.9	331	246	1.5
500	353	286	3.2	324	185	2.5	347	230	1.2	364	252	1.5				336	234	2.0	345	255	1.7	352	136	2.2	339	283	3.0	336	276	2.7	339	221	2.3				331	254	3.3
1,000	327	304	2.1	322	198	3.1	324	237	2.7	364	244	1.8	351	351	2.4	314	244	3.9	313	259	3.4	339	154	2.4	302	280	1.2	305	272	3.8	312	222	3.1	353	226	3.5	320	263	4.9
1,500	311	313	2.4	303	224	4.3	288	251	4.6	364	236	2.1	351	318	3.2	291	257	5.6	272	269	4.9	306	198	1.9	284	293	0.8	254	275	4.5	264	221	3.3	317	235	4.6	303	274	6.6
2,000	300	307	2.5	289	245	5.8	260	263	7.0	359	233	2.4	326	293	4.0	259	273	7.5	248	278	6.7	280	235	2.8	269	292	1.0	230	276	5.9	215	230	3.2	262	244	5.2	284	281	8.6
2,500	296	308	2.8	278	254	7.0	244	273	8.6	355	240	2.9	297	285	5.9	235	277	8.9	213	288	8.3	257	255	4.1	255	294	1.5	180	283	7.1	159	247	3.0	216	255	5.3	263	282	10.4
3,000	289	309	3.2	255	263	8.2	224	276	10.2	353	249	3.9	262	285	8.2	211	279	10.4	176	286	9.6	235	263	5.4	252	291	2.5										248	283	11.7
4,000	274	297	5.3	229	272	10.9	181	285	12.2	339	256	5.7	197	282	10.6	165	288	13.7				205	270	8.0	232	282	4.3										210	282	14.1
5,000	248	291	6.3	194	279	13.7				317	258	7.4				145	286	15.9				173	273	11.2	219	278	6.5										165	282	14.6
6,000	234	294	7.6	173	280	15.4				293	259	9.6										143	272	13.7	204	278	8.4												
8,000										230	262	11.8													156	270	10.9												
10,000										159	266	13.1																											

See footnote at end of Table 1B.

TABLE 3B.—*Maximum free-air wind velocities (m. p. s.) for different sections of the United States based on pilot balloon observations during the year 1945*

Section	Surface to 2,500 meters (m. s. l.)					Above 2,500 to 5,000 meters (m. s. l.)					Above 5,000 meters (m. s. l.)				
	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station
Northeast [1]	54.6	W.	1,365	Apr. 1	Boston, Mass.	61.6	W.	4,690	Feb. 16	Boston, Mass.	85.0	SW.	11,020	July 11	Boston, Mass.
East-Central [2]	52.8	NW.	1,821	Jan. 24	Lynchburg, Va.	61.2	WSW.	3,270	Feb. 20	Knoxville, Tenn.	80.8	SW.	7,382	Dec. 31	Hatteras, N. C.
Southeast [3]	43.0	W.	2,189	Dec. 26	Atlanta, Ga.	57.6	W.	4,421	Dec. 16	Charleston, S. C.	85.0	WNW	11,022	Jan. 11	Charleston, S. C.
North-Central [4]	48.8	WSW	2,472	Sept. 23	Williston, N. Dak.	57.3	WNW	5,000	May 30	S. Ste. Marie, Mich.	78.0	NNW	11,525	May 5	St. Paul, Minn.
Central [5]	49.2	SSW	1,790	June 27	Dodge City, Kans.	56.2	WNW	5,000	Mar. 6	Dodge City, Kans.	92.8	W	{19,908 20,193}	July 26	Goodland, Kans.
South-Central [6]	47.8	SW.	1,916	Mar. 28	Tulsa, Okla.	65.0	WNW	4,500	Dec. 13	Big Spring, Tex.	100.0	WSW	14,151	Nov. 13	Big Spring, Tex.
Northwest [7]	50.3	W.	2,500	Nov. 11	Glasgow, Mont.	56.0	W.	4,979	Jan. 13	Great Falls, Mont.	86.8	WNW.	10,738	July 26	Spokane, Wash.
West-Central [8]	47.0	S.	2,464	Sept. 21	Salt Lake City, Utah.	62.2	WSW.	3,801	Dec. 28	Reno, Nev.	91.2	WNW.	16,197	Aug. 17	Denver, Colo.
Southwest [9]	53.9	NNW	2,180	Feb. 12	Sandberg, Calif.	72.4	N.	4,443	Feb. 21	Las Vegas, Nev.	104.0	W.	6,143	Nov. 8	El Paso, Tex.

[1] Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio.
[2] Delaware, Maryland, Virginia, West Virginia, southern Ohio, Kentucky, eastern Tennessee, and North Carolina.
[3] South Carolina, Georgia, Florida, and Alabama.
[4] Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.
[5] Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.
[6] Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and western Tennessee.
[7] Montana, Idaho, Washington, and Oregon.
[8] Wyoming, Colorado, Utah, northern Nevada, and northern California.
[9] Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

RIVER STAGES AND FLOODS FOR DECEMBER 1945

By C. R. JORDAN

Precipitation during December was above normal along the Atlantic and Gulf coasts; in western Nebraska, Iowa, and portions of adjoining States; and in the Northwest. Except for the area centered over Iowa, precipitation over the interior of the country was generally below normal. It was particularly dry in a broad area extending from northern Texas to southern Missouri.

No flooding of consequence was reported until near the end of the month, when light overflows occurred in the Southeastern States and in Indiana, and moderate to severe floods developed along the Pacific coast from northern California to Washington.

Atlantic Slope and Eastern Gulf of Mexico Drainage.—Moderately heavy rains during the last week of the month caused substantial rises in the streams of the Southeastern States. Many of the streams exceeded flood stage slightly at numerous points. Seriously high stages or general overflow did not occur and no great damage resulted.

Ohio Basin.—The Scioto River at Larue, Ohio, rose from a stage of 8.4 feet on December 30 to a peak of 12 feet on the 31st, due to the formation of an ice gorge below Larue. No damage was caused by the overflow.

Snow cover in Indiana ranged from 5 to 10 inches on December 24, at which time a general rain of from 1 to 2 inches fell over the State. The severe temperatures that had prevailed for two weeks gave way to moderate temperatures, and a general melting of the snow and ice occurred during the last week of the month. The Wabash River and tributaries rose to above flood stage at several places. Ice in the rivers was loosened and several ice jams were reported, the most pronounced being at Covington, Ind. This jam held large quantities of water back for a week or more, delaying the rise at Terre Haute and below. Little or no damage resulted.

Pacific Slope Drainage.—During the last decade in December rainstorms accompanying a sequence of almost daily frontal passages over northern California resulted in major stream rises, but no serious flooding occurred.

Tributary creeks in the Sacramento Basin caused local overflow of lowlands. The water level in the Sacramento River channel rose steadily, with the danger stage being reached on some of the lower valley levees. This was especially true in the Knights Landing sector where the established danger stage was exceeded by nearly 1 foot.

Several sequences of progressively higher crests passed down the Sacramento River, the final one culminating on December 30 in the Knights Landing-Fremont Wier section. The overflow into Yolo Bypass at Fremont Wier reached a maximum depth of about 3.4 feet on the 30th. In the bypass substandard-leveed island tracts of Little Holland, Prospect Island, and Liberty Island were flooded on the 26th, 27th, and 30th, respectively. Of these tracts, only Liberty Island was planted to winter crops, and here considerable loss was sustained.

The Russian River overflowed its banks at several places; a few summer homes and cottages located along the lower banks of the river were flooded.

A heavy rainfall occurred on the slopes of Mount Tamalpias and caused extreme flooding of small creeks running down the slopes through the vicinity of Mill Valley to Larkspur, with the water running to sufficient heights to flood many homes. No estimate of the damage caused has been received.

Frequent moderate to heavy rains, from December 20–26, over the Eel River Basin caused a sharp rise in the Eel River, beginning on the night of the 26th and cresting early on the 28th. Considerable damage was done to bridges and highways, and debris and silt were deposited in the fields that were flooded. Some choice land near the mouth of the river was washed away.

An exceptionally destructive flood, probably exceeding the January 1943 flood in extent of inundated area and resultant damages, occurred in the Willamette River Basin. The following report of the flood was received from the Weather Bureau Regional Office, Seattle, Wash.:

A combination of widespread rainfall and snow-melt was responsible for the flood. The storm began on the 27th and lasted for 3 days, with intense rain falling during the 24-hour period ending 6 p. m. of December 28. However, total storm rainfall amounts were not excessive. (See Table 1 for comparative 3-day rainfall amounts for the December 1945 and January 1943 storms.) Heavy precipitation during the preceding months saturated the soil at low elevations and produced heavy snow cover in the mountains. The snow-line elevation previous to the flood was approximately 2,000 feet over the watershed.

The high temperature and winds that accompanied the rainstorm produced rapid rates of melting during a short period of time. The melting zone probably extended from 2,000 feet to an estimated maximum freezing level of 9,000 feet. Therefore, a relatively large portion of the watershed contributed run-off during this flood.

Flows in the tributaries were characterized by sharp peaks, low flood volumes, and rapid stream velocities. The important flow contributions came from the upper Willamette, McKenzie, and Santiam Rivers. The estimated discharge for Eugene indicates that the maximum flood of record occurred at that point. (See Table 2.) Although the flood crest traveled rapidly down the Willamette, it did not synchronize with exceptionally high flow from downstream tributaries. Hence the flood peaks at Albany and Salem were not of major proportions.

Nine lives were lost directly or indirectly as a result of the heavy rains and floods. Property damage amounted to several millions of dollars; the final results of a comprehensive survey are not yet available. Most extensive damage was produced in the area above Eugene. In the Glenwood district between Eugene and Springfield, 90 percent of the homes and buildings were damaged by the rapid overflow. Considerable damage was caused to bridges and roads throughout the Willamette Valley from the headwaters down to Oregon City, and may exceed similar damage produced by the 1943 flood. The Engineers estimate that agricultural damage will amount to 50 percent of the total damages produced by the flood. The high velocities of flow carried away a great deal of top soil, destroyed considerable acreage of winter crops, and damaged orchards, hop yards, and fall-planted crops.

Light overflow was reported in the streams of northwest Washington during the last few days of the month. Only minor damage resulted.

TABLE 1.—*Comparative rainfall data*

River	Station	Elev. feet, m. s. l.	Rainfall, 3-day amounts	
			Dec. 30, 1942–Jan. 1943	Dec. 27–29, 1945
Coast Fork	Blackbutte	1,200	7.10	*5.22
	Cottage Grove	650	5.96	4.32
Middle Fork	Eula	840	6.35	6.34
	Oakridge	1,313	5.05	4.63
McKenzie	Leaburg	675	6.33	5.14
Calapooya	Holley	350	4.89	4.15
South Santiam	Waterloo	400	4.39	2.65
North Santiam	Mehama	628	4.79	3.83
	Detroit	1,450	6.28	6.56
Pudding	Silver Creek	1,340	4.77	3.60
Molalla	Molalla	320	2.11	2.15
	Sundown Ranch	2,400	4.15	4.76
Clackamas	Cazadero	503	2.88	4.15
Long Tom	Monroe	444	4.90	3.03
	Noti	450	6.27	4.97
Marys	Summit	730	5.61	4.02
	Corvallis Water Bureau.	450	5.61	3.68
Yamhill	Willamina	300	3.76	2.49
Tualatin	Forest Grove	220	1.87	2.24
	Hillsboro	203	1.23	2.35

TABLE 2.—*Comparative flood stages and discharges*

Date	Eugene		Albany		Salem	
	Stage Ft.	Flow c. f. s.	Stage Ft.	Flow c. f. s.	Stage Ft.	Flow c. f. s.
Dec. 1945	18.4	*117,000	30.0	*206,000	28.4	*255,000
Jan. 1943	16.7	100,000	30.6	218,000	30.6	291,000
Jan. 1923	18.0	72,500	30.0	191,000	31.0	358,000
Nov. 1909	21.5	96,000	29.3	182,000	29.4	327,000
Feb. 1890	23.0	113,000	33.8	243,000	37.1	470,000
Jan. 1881	22.2	108,000	32.8	229,000	36.3	428,000
Dec. 1861	23.0	113,000	36.0	274,000	39.0	500,000

*Provisional discharges, U. S. Geological Survey.

FLOOD STAGE REPORT FOR DECEMBER 1945

[All dates in December unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE					
Lake Erie					
St. Marys: Decatur, Ind.	Feet 13	30		Feet	
ATLANTIC SLOPE DRAINAGE					
Roanoke:					
Weldon, N. C.	31	7	8	33.0	7
		28	(2)		
Williamson, N. C.	10	9	17	10.9	13
		30			
Neuse: Goldsboro, N. C.	14	11	13	14.8	12
		31	(2)		
Cape Fear:					
Fayettesville, N. C.	35	31	31	35.9	31
Lock No. 2, Elizabethtown, N. C.	20	7	9	25.5	8
		27	(2)		
PeeDee:		27	28	32.2	27
Cheraw, S. C.	30			34.0	30
		29	(2)	32.2	Jan. 1
Mars Bluff Bridge, S. C.	17	28	(2)	22.0	Jan. 5
		5	7	6.5	6
Saluda: Pelzer, S. C.	6	25	(2)	7.3	27
				6.9	29
		6	6	15.6	6
Broad: Blairs, S. C.	14	26	27	19.2	26
		29	(2)	17.8	30
Wateree: Camden, S. C.	23	30	31	23.4	30
Savannah: Butler Creek, Ga.	21	26	28	23.4	27
Ocmulgee: Abbeville, Ga.	11	31	(2)		
Oconee: Milledgeville, Ga.	20	25	28	25.1	26
EAST GULF OF MEXICO DRAINAGE					
Flint: Albany, Ga.	20	31	(2)		
Apalachicola: Blountstown, Fla.	15	26	(2)		
Choctawhatchee: Caryville, Fla.	12	29	29	12.2	29
Pearl: Pearl River, La.	12	28	Jan. 1	13.6	30-31

FLOOD STAGE REPORT FOR DECEMBER 1945—Con.

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM					
Ohio Basin					
Scioto: Larue, Ohio	Feet 11	31	31	Feet 12.0	31
West Fork:					
Anderson, Ind.	10	31	(2)		
Elliston, Ind.	18			17.5	27
Edwardsport, Ind.	12	26	(2)	16.5	28
East Fork:					
Seymour, Ind.	14			13.4	26
Shoals, Ind.	25			13.2	31
White:					
Petersburg, Ind.	16	28	(2)	17.3	Jan. 3
Hazleton, Ind.	16	28	(2)	17.7	Jan. 5
Wabash:					
Wabash, Ind.	12	31	Jan. 1	14.2	31
LaFayette, Ind.	11	30	Jan. 3	16.5	Jan. 1
Covington, Ind.	16	31	(2)	23.8	Jan. 2
Terre Haute, Ind.	14	31	(2)		
PACIFIC SLOPE DRAINAGE					
Sacramento Basin					
Sacramento: Knights Landing, Calif.	38	29	31	38.7	30
Eel Basin					
Eel: Fernbridge, Calif.	17.5	27	29	22.6	27
Columbia Basin					
Coast Fork: Saginaw, Oreg.	9	7	7	9.2	7
		28	29	12.4	28
Middle Fork: Eula, Oreg.	13	28	29	18.8	28
McKenzie:					
Leaburg, Oreg.	12	27	31	25.5	28
Hendricks Bridge, Oreg.	13	28	29	13.2	29
Armitage Bridge, Oreg.	11	28	30	17.4	29
Long Tom: Monroe, Oreg.	12	29	29	14.5	29
Calapooya: Holley, Oreg.	10.5	28	28	14.0	28
North Santiam: Mehama, Oreg.	15	28	28	15.4	28
South Santiam: Waterloo, Oreg.	20	28	29	22.8	29
Santiam: Jefferson, Oreg.	13	28	31	22.6	29
South Yamhill:					
Willamina, Oreg.	8	29	29	9.0	29
Whiteson, Oreg.	38	29	31	39.8	30
Molalla: Canby, Oreg.	11	28	29	12.2	28-29
Tualatin: Dilley, Oreg.	12	29	30	12.2	29
Willamette:					
Eugene, Oreg.	12	28	30	18.5	29
Harrisburg, Oreg.	12	7	8	12.6	7
		28	Jan. 1	19.7	29
Corvallis, Oreg.	24	30	31	28.2	30
Albany, Oreg.	20	29	Jan. 1	30.0	30
Salem, Oreg.	20	29	Jan. 1	28.4	30
Oregon City, Oreg.	12	Nov. 30	1	12.3	Nov. 30
		30	Jan. 3	16.5	Dec. 31-Jan. 1

[1] Provisional.
[2] Continued into January.

CLIMATOLOGICAL DATA FOR DECEMBER 1945

CONDENSED CLIMATOLOGICAL SUMMARY OF TEMPERATURE AND PRECIPITATION BY SECTIONS

[For description of tables and charts, see REVIEW, January 1943, p. 15]

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Section	Temperature								Precipitation					
	Section average	Departure from the normal	Monthly extremes						Section average	Departure from the normal	Greatest monthly		Least monthly	
			Station	Highest	Date	Station	Lowest	Date			Station	Amount	Station	Amount
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	42.1	−5.6	Fairhope	77	9	Valley Head	6	20	6.50	+1.22	Columbia	9.78	Montevallo	3.70
Arizona	40.6	−2.2	Sabino Canyon	86	23	Ganado	−20	14	1.46	+.16	Pinal Ranch	6.18	5 stations	.00
Arkansas	37.7	−5.0	Hope	79	7	Mammoth Spring	−12	20	2.25	−1.98	Cummins Farm	4.97	Harrison	.38
California	45.5	−.3	3 stations	87	1 30	Ellery Lake	−18	13	7.42	+3.47	Squaw Creek	36.64	Blythe	.20
Colorado	23.4	−2.4	Eversoll Ranch	75	29	Taylor Park	−37	1 14	.67	−.22	Wolf Creek Pass	5.06	Genoa	.00
Florida	57.6	−2.2	3 stations	87	1 14	2 stations	18	1 20	4.95	+2.15	Chattahoochee	10.79	Canal Point	.42
Georgia	52.0	−5.6	Cuthbert	77	8	Tallapoosa	9	17	7.68	+3.35	Blakely	10.37	Savannah Beach	4.81
Idaho	25.5	−1.0	Swan Falls	66	29	Island Park Dam	−36	18	2.75	+.68	Sheep Hill	8.39	Barton Flat	.23
Illinois	24.6	−6.3	East St. Louis	68	8	Freeport	−18	18	2.02	−.08	Lincoln	3.23	Chester	.78
Indiana	25.6	−6.5	3 stations	62	8	Collegeville	−15	17	2.33	−.39	Cambridge City	3.49	Waterloo	.76
Iowa	18.0	−6.1	2 stations	60	1 7	Decorah	−24	18	2.03	+.84	Sanborn	3.62	Waukon	.74
Kansas	27.5	−5.5	Elkhart	72	29	Horton	−24	29	.81	−.08	Jewell	1.89	St. Francis	T
Kentucky	31.8	−5.8	2 stations	65	8	2 stations	−7	20	2.50	−1.31	Burnside	5.21	Murray	1.26
Louisiana	48.8	−3.6	do	80	9	do	14	20	5.33	−.02	Burrwood	11.04	Winnsboro	2.18
Maryland-Delaware	30.8	−4.4	do	62	9	do	−5	1 23	5.11	+1.92	Lewes, Del	9.32	Cumberland, Md	1.69
Michigan	21.5	−4.1	Holland	57	8	Watersmeet	−33	19	1.76	−.27	Calumet	5.34	Mio	.49
Minnesota	10.2	−5.6	3 stations	49	6	Warroad	−35	22	1.26	+.50	Waseca	2.64	Ada	.40
Mississippi	43.1	−5.2	Magnolia	78	9	Holly Springs	9	20	5.09	−.24	Woodville	8.75	Scott	3.62
Missouri	27.8	−6.3	Ozark Beach	70	8	Tarkio	−20	19	1.39	−.78	Memphis	3.57	Bunker	.32
Montana	20.7	−2.7	2 stations	60	4	Wolf Point	−40	17	1.19	+.24	Bear Dance	4.90	Chester	.17
Nebraska	21.6	−5.5	Alma	69	7	Bridgeport	−24	19	.91	+.23	Geneva	2.76	Benkelman	.12
Nevada	32.6	+1.2	Nixon	71	29	Geyser	−15	14	1.03	+.04	Glenbrook	5.55	Las Vegas	T
New England	22.0	−4.3	Arlington, Mass	55	8	Bloomfield, Vt	−23	21	4.46	+1.13	Beechwood, Mass	10.88	Burlington, Vt	1.17
New Jersey	29.0	−4.8	Hammonton	64	8	Runyon	−11	18	5.03	+1.50	Hammonton	7.95	Layton	2.52
New York	20.9	−5.7	2 stations	55	8	Stillwater Reservoir	−26	22	2.43	−.51	Cutchogue	7.15	Little Falls No. 1	.73
North Carolina	36.8	−5.6	Scotland Neck	72	8	2 stations	−5	17	6.28	+2.44	Brevard	9.75	Kill Devil Hill	2.66
North Dakota	7.0	−6.4	3 stations	56	5	Willow City	−38	11	.64	+.17	Grafton	1.49	2 stations	.10
Ohio	25.6	−5.0	Chesapeake	59	9	Millport	−15	18	1.98	−.72	Findlay	3.07	Oberlin	1.09
Oklahoma	36.1	−3.8	Antlers	83	6	2 stations	−6	1 19	.36	−1.33	Bartlesville	2.85	Hobart	.00
Oregon	33.3	−.4	Bandon	70	3	Ukiah	−18	19	5.25	+1.38	Illahe	26.51	Hart Mountain	.37
Pennsylvania	25.6	−5.6	Marcus Hook	62	9	Ridgway	−22	23	2.73	−.36	2 stations	5.92	Austinburg	1.13
South Carolina	41.0	−5.6	3 stations	70	1 8	Caesars Head	5	20	7.24	+3.61	Crescent	10.73	Blackville	3.34
South Dakota	16.1	−5.9	Orman	67	5	Pollock	−29	18	.55	+.03	Sioux Falls	2.97	Hermosa	T
Tennessee	34.9	−5.7	Clarksville	67	8	Crossville	−8	16	4.72	+.18	Monteagle	8.60	Halls	1.73
Texas	47.2	−1.6	Mercedes	92	30	Spearman	−1	15	1.77	−.55	Liberty	10.80	6 stations	.00
Utah	25.9	−1.3	4 stations	62	1 5	Woodruff	−27	13	1.75	+.64	Alta	9.45	Callao	.00
Virginia	32.3	−5.8	Onley	66	5	Gordonsville	−2	24	4.72	+1.64	Saluda	7.90	Cootes Store	1.92
Washington	33.1	−.6	Mottinger	67	7	Stockdill Ranch	−12	18	5.67	+.09	Wishkah Headworks	30.26	Clarkston Heights	1.26
West Virginia	28.9	−5.6	2 stations	62	9	Wellsburg	−10	23	2.57	−.71	Harpers Ferry	4.70	Spruce Knob	1.08
Wisconsin	16.1	−4.5	Beloit	54	9	Mellen	−33	19	1.47	+.18	Medford	2.60	Dodgeville	.66
Wyoming	19.9	−2.2	2 stations	61	1 7	Afton	−36	19	1.03	+.29	Grassy Lake Dam	7.03	Riverton	T
Alaska (November)	7.0	−7.2	View Cove	67	1	Allakaket	−60	28	1.76	−.97	View Cove	19.67	Candle	.21
Puerto Rico	74.3	+.02	Guayama	94	3	Cayey	40	1	3.33	−.78	Mona Island	11.67	Guajataca Dam	.30

[1] Other dates also.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR DECEMBER 1945

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
NEW ENGLAND	*Ft.*	*Ft.*	*Ft.*	*Mbs.*	*Mbs.*	*Mbs.*	°F.	°F.	°F.		°F.	°F.		°F.	°F.		°F.	%	*In.*	*In.*	*In.*		*Mi.*								*0–10*	*In.*	*In.*	
							24.9	−4.0										78	5.56	+2.1											6.4			
Eastport	75	67	85	1,007.8	1,011.2	−4.0	24.1	−2.2	46	26	30	1	18	18	24	1,266	16	72	3.72	.0	.90	13	13.2	nw.	39	s.	26	10	5	16	6.1	13.8	4.0	0
Greenville, Maine [1]	1,070	6	41	972.9	1,014.6	.....	15.4	−3.4	39	26	24	−12	19	7	31	1,541	12	..	3.18	+.1	1.42	8	----	nw.	..	.....	..	9	5	17	----	13.7	16.2	0
Portland, Maine [1]	103	5	43	1,009.5	1,013.5	−3.4	22.0	−5.6	48	8	32	−11	22	12	34	1,330	16	86	5.95	+2.0	2.21	10	8.8	w.	35	ne.	1	11	9	11	5.6	10.8	.6	0
Concord [1]	289	5	45	1,003.1	1,014.6	−3.4	20.2	−3.8	46	9	30	−8	21	10	42	1,391	14	79	5.66	+2.5	2.63	10	7.8	nw.	28	nw.	11	8	8	15	6.2	10.5	2.7	0
Burlington [1]	403	5	51	999.3	1,015.6	−2.0	19.2	−5.2	43	9	27	−5	21	11	33	1,416	16	84	1.17	−.7	.47	11	8.8	s.	24	nw.	11	7	10	14	6.5	4.8	.9	0
Boston [1]	124	33	62	1,009.5	1,014.6	−3.0	28.5	−4.0	52	8	35	8	23	22	19	1,133	20	73	7.42	+4.0	3.08	12	12.6	nw.	34	ne.	6	9	7	15	6.5	24.6	4.0	0
Nantucket	12	11	59	1,012.5	1,013.2	−4.2	32.4	−3.4	53	7	38	12	23	27	18	1,015	27	82	6.59	+2.8	1.56	15	13.2	w.	42	n.	1	6	8	17	6.8	13.9	.0	0
Block Island	26	11	46	1,012.5	1,014.2	−3.8	32.0	−4.0	52	6	37	13	23	27	18	1,026	25	75	6.29	+2.5	1.57	13	20.4	nw.	47	nw.	12	8	7	16	6.6	9.7	.0	0
Providence [2]	159	46	60	1,008.5	1,014.9	−3.1	28.8	−2.8	54	8	36	8	23	22	27	1,122	20	76	7.82	+4.4	2.39	11	9.0	w.	40	se.	26	8	8	15	6.6	26.7	3.2	0
Hartford [1]	159	5	44	.....	1,015.9	−2.4	24.0	−5.8	50	9	33	−5	23	15	----	1,270	21	77	6.85	+2.9	1.65	11	8.6	n.	28	nw.	11	9	5	17	----	45.3	7.5	0
New Haven [1]	107	5	39	1,011.2	1,015.9	−2.4	27.0	−3.9	52	8	35	−2	20	19	28	1,182	20	76	6.51	+2.8	1.48	12	7.7	nw.	32	se.	26	9	7	15	6.5	24.0	2.6	0
MIDDLE ATLANTIC																																		
							31.2	−4.2										76	4.39	+1.1										6.8			
Albany [1]	97	26	40	1,012.2	1,015.9	−2.7	21.4	−4.1	44	9	30	−5	21	13	41	1,354	15	78	2.33	−.3	.74	12	8.4	w.	36	w.	27	5	14	12	6.5	16.2	.2	0
Binghamton [2]	871	60	79	983.4	1,016.9	−2.1	24.0	−4.2	51	9	31	−6	24	17	34	1,270	18	82	1.65	−.7	.64	13	6.4	w.	21	sw.	16	4	9	18	7.5	15.2	T	0
New York	314	415	454	1,003.7	1,016.3	−2.7	30.9	−4.1	55	8	37	10	23	25	30	1,057	21	67	4.44	+.8	1.36	13	17.0	nw.	50	se.	25	8	6	17	6.6	15.1	.0	0
Harrisburg [1]	374	30	49	1,003.1	1,017.6	−2.4	28.9	−3.8	52	8	35	5	18	23	22	1,117	20	72	3.32	+.3	1.01	15	8.1	w.	25	nw.	11	5	6	20	7.2	14.6	.4	0
Philadelphia [1]	114	5	57	1,012.2	1,016.9	−2.7	32.0	−4.3	55	8	37	13	17	27	26	1,026	24	78	5.05	+1.6	1.03	14	7.5	nw.	22	ne.	19	9	5	17	6.5	13.9	.0	0
Reading	323	47	306	1,004.7	1,017.6	.....	29.8	−4.4	52	8	36	6	18	24	25	1,092	----	--	3.84	+.3	1.11	13	10.8	nw.	36	nw.	11	5	7	19	7.0	16.5	T	0
Scranton	805	72	104	986.1	1,016.9	−2.4	26.4	−4.3	51	9	32	6	24	20	28	1,196	----	--	1.26	−1.8	.41	14	6.7	n.	19	sw.	16	5	10	16	7.2	13.5	T	0
Atlantic City	52	37	172	1,014.2	1,016.6	−2.7	33.4	−3.0	59	8	39	11	23	27	25	981	28	80	7.86	+3.9	2.76	12	16.6	w.	61	ne.	6	7	7	17	6.8	12.4	.0	0
Trenton	190	89	107	1,009.1	1,016.6	.....	30.3	−4.1	54	9	36	10	17	24	33	1,079	22	72	3.85	+.5	.89	13	9.4	nw.	26	nw.	23	6	8	17	6.5	12.5	.0	0
Baltimore [2]	123	100	215	1,012.5	1,017.6	−2.7	33.4	−3.8	58	8	39	15	23	28	21	980	24	72	5.99	+2.6	2.22	12	10.2	sw.	34	sw.	16	9	3	19	6.5	12.2	.0	0
Washington [2]	112	56	100	1,013.2	1,017.6	−2.7	33.0	−3.6	58	8	38	13	24	28	23	989	24	72	5.29	+2.0	1.52	14	7.9	nw.	24	w.	11	6	7	18	6.9	9.4	.0	0
Cape Henry	18	8	54	1,015.9	1,016.9	.....	38.8	−4.9	59	10	44	23	17	34	24	810	32	80	5.40	+2.0	1.18	13	14.4	nw.	49	nw.	10	7	5	19	7.2	3.8	.0	0
Lynchburg [1]	686	4	50	991.5	1,017.6	−3.1	32.6	−4.7	58	8	40	14	12	26	26	1,004	25	78	3.99	+.7	1.66	16	8.6	sw.	32	e.	5	8	5	18	6.7	8.4	.0	0
Norfolk [2]	91	80	125	1,013.9	1,017.6	−2.7	38.6	−4.5	60	25	44	20	17	33	29	819	32	81	5.87	+2.5	1.76	13	10.3	n.	33	ne.	5	8	4	19	7.0	3.2	.0	0
Richmond	144	11	52	1,011.9	1,017.6	−3.1	34.6	−5.2	61	8	41	14	17	28	31	945	28	82	5.78	+2.5	1.40	14	8.0	nw.	34	ne.	5	11	1	19	6.6	8.2	.0	1
SOUTH ATLANTIC																																		
							41.5	−5.0										82	6.57	+3.1										6.5			
Asheville	2,253	77	92	935.7	1,018.3	−3.0	33.4	−4.4	62	8	41	10	20	26	33	977	27	82	4.83	+1.6	1.78	14	8.5	nw.	24	ne.	4	9	0	22	7.1	11.0	T	0
Charlotte [2]	775	63	86	988.8	1,018.0	−3.3	37.8	−5.2	62	8	45	16	17	30	31	843	30	81	7.52	+3.7	2.02	15	7.0	sw.	26	ne.	4	7	7	17	7.0	5.4	.0	0
Greensboro [1]	887	6	56	985.1	1,018.3	.....	34.0	−5.2	61	8	42	8	17	25	33	964	27	82	5.42	+1.6	1.70	13	8.1	sw.	34	ne.	5	7	6	18	6.7	5.8	.0	0
Hatteras	11	5	50	1,016.3	1,016.9	−3.3	44.8	−5.3	62	28	52	29	17	38	29	626	39	87	7.39	+3.2	2.32	14	14.4	n.	47	n.	10	8	6	17	6.7	.0	.0	1
Raleigh [1]	376	5	60	1,003.7	1,018.3	−2.7	37.1	−5.9	59	9	44	16	17	30	29	868	30	86	7.69	+4.1	2.67	11	7.3	w.	22	sw.	25	1	13	17	7.5	3.4	.0	0
Wilmington	72	73	107	1,014.9	1,018.0	−3.0	43.2	−5.9	67	31	51	22	17	35	30	675	36	82	6.62	+3.8	2.20	12	9.1	nw.	40	sw.	31	10	6	15	5.9	T	.0	0
Charleston [2]	48	11	92	1,015.9	1,018.0	−3.0	46.6	−5.1	65	10	54	27	17	39	24	571	36	82	4.82	+2.1	1.60	15	10.1	w.	29	s.	31	9	7	15	5.8	.0	.0	0
Columbia, S. C. [2]	347	70	91	1,005.1	1,018.3	−3.0	41.6	−5.6	64	8	50	21	17	33	31	728	32	78	6.35	+3.3	1.65	16	8.1	ne.	30	ne.	4	9	6	16	6.4	T	.0	0
Greenville, S. C. [1]	1,040	18	36	979.3	1,017.6	.....	37.0	−5.2	61	8	45	14	17	29	30	868	30	82	7.71	+2.9	2.49	16	9.1	ne.	40	ne.	4	9	5	17	6.6	1.5	.0	0
Augusta [2]	182	62	77	1,011.2	1,017.6	−3.7	42.3	−5.8	66	8	51	21	20	34	33	704	32	72	7.40	+4.2	2.06	15	5.8	nw.	26	w.	25	9	6	16	6.5	.0	.0	1
Savannah [4]	65	73	152	1,015.6	1,018.6	−2.4	47.4	−3.3	70	8	58	22	17	37	34	544	39	82	5.42	+2.5	1.64	13	10.0	w.	38	sw.	10	6	8	17	6.8	.0	.0	1
Jacksonville [2]	43	86	110	1,016.6	1,018.6	−2.1	53.1	−3.2	75	28	62	29	17	44	26	369	44	84	7.63	+4.6	2.12	10	8.8	ne.	33	nw.	31	10	9	12	5.7	.0	.0	4
FLORIDA PENINSULA																																		
							65.7	−1.2										85	2.42	+0.5										5.4			
Key West [2]	21	10	64	1,015.9	1,016.9	−1.7	70.4	+.1	83	30	76	55	2	65	17	8	64	84	1.19	−.5	.61	8	9.7	e.	40	w.	4	13	9	9	4.8	.0	.0	1
Miami [2]	25	242	249	1,016.3	1,017.3	−2.3	67.2	−1.9	82	15	73	47	17	61	21	54	60	88	2.37	+.4	.86	12	12.6	s.	35	w.	5	10	11	10	5.2	.0	.0	1
Tampa [1]	35	6	43	1,016.3	1,018.0	−2.0	59.4	−1.7	77	26	68	37	17	51	27	187	52	84	3.70	+1.6	1.20	12	10.2	n.	34	nw.	16	5	12	14	6.3	.0	.0	3
EAST GULF																																		
							44.5	−5.0										80	6.57	+1.7										6.6			
Atlanta [1]	1,173	33	72	974.9	1,018.3	−3.0	38.4	−5.8	64	8	46	15	20	30	33	824	29	74	6.74	+2.0	2.39	17	10.5	nw.	32	nw.	10	7	6	18	7.0	.5	.0	0
Macon [2]	370	79	87	1,004.7	1,018.6	−2.7	42.0	−5.5	67	8	52	19	20	32	36	711	32	74	8.72	+4.7	2.99	16	6.7	nw.	27	n.	25	6	7	18	6.9	T	.0	1
Apalachicola	35	11	51	1,016.3	1,018.0	.....	50.6	−5.1	71	7	59	29	20	42	26	445	44	82	6.95	+1.8	2.23	12	8.9	nw.	33	e.	27	9	7	15	6.2	.0	.0	3
Pensacola	56	54	79	1,016.3	1,018.3	−2.7	48.9	−5.1	69	25	58	20	20	40	30	500	40	80	7.53	+2.9	2.14	14	8.4	nw.	27	w.	25	11	8	12	5.8	T	.0	0
Anniston	741	9	----	----	----	----	39.6	−5.6	65	8	48	13	20	31	37	785	--	--	6.22	+1.2	1.87	12	----	nw.	..	.....	..	7	5	19	----	1.5	.0	0
Birmingham [1]	700	5	62	992.6	1,018.6	−2.7	39.2	−4.9	65	8	48	12	20	30	37	798	32	84	5.54	.....	1.38	13	7.9	nw.	31	se.	25	5	9	17	6.9	2.5	.0	1
Mobile [2]	57	86	161	1,016.3	1,018.6	−2.4	47.8	−4.4	73	25	57	20	20	38	32	532	39	82	8.26	+3.2	2.72	15	7.5	n.	27	nw.	30	8	5	18	6.8	T	.0	3
Montgomery [2]	218	92	105	1,010.2	1,018.6	−2.7	43.8	−5.6	67	8	52	17	20	35	34	657	35	83	6.79	+2.0	2.85	14	7.3	e.	24	w.	10	8	8	15	6.5	T	.0	2
Meridian [2]	375	67	92	1,004.7	1,019.0	−2.3	43.2	−4.5	69	9	52	15	20	34	37	672	36	84	4.71	−.5	1.50	13	6.1	nw.	19	se.	18	9	7	15	6.2	T	.0	1
Vicksburg [2]	247	82	102	1,009.5	1,018.6	−2.4	44.8	−5.2	71	9	53	19	20	37	31	627	34	82	4.14	−1.2	.82	12	9.1	nw.	23	nw.	4	8	4	19	6.7	T	.0	2
New Orleans [4]	53	50	84	1,016.3	1,018.3	−2.0	51.2	−3.4	77	9	59	26	20	43	28	428	43	79	5.68	+.9	1.35	13	7.2	nw.	23	nw.	4	8	4	19	6.7	.0	.0	4
WEST GULF																																		
							48.5	−2.8										75	3.05	−0.2										6.6			
Shreveport [1]	249	5	64	1,009.5	1,019.0	−1.3	44.4	−3.7	71	24	53	19	20	36	39	638	35	75	3.66	−.6	2.09	9	9.4	nw.	28	nw.	19	6	8	17	7.1	T	.0	1
Fort Smith	463	57	82	1,001.4	1,018.3	−2.0	36.3	−5.8	69	8	46	8	19	27	35	890	28	76	.58	−2.2	.17	6	8.7	ne.	33	w.	24	8	7	16	6.6	.9	.0	0
Little Rock [1]	357	26	58	1,005.4	1,019.0	−1.7	38.0	−6.2	69	8	46	13	19	30	34	838	29	74	1.91	−2.2	.67	10	8.6	nw.	30	nw.	24	6	7	18	7.3	2.0	.0	1
Austin [1]	605	10	41	996.3	1,018.0	.....	49.8	−1.2	78	24	60	25	20	39	38	469	38	71	2.94	+.3	2.11	7	9.1	n.	32	n.	30	6	10	15	6.6	T	.0	1
Brownsville [1]	57	5	54	1,014.2	1,016.3	.....	61.9	+.7	90	30	72	33	5	51	39	177	52	80	.72	−1.2	.31	7	10.5	nw.	32	n.	10	7	7	17	6.7	.0	.0	1
Corpus Christi [1]	20	4	33	1,016.9	1,017.6	−2.4	56.0	−.5	82	24	66	31	19	46	35	300	48	82	1.73	.....	.91	9	10.3	n.	34	nw.	3	7	9	15	6.6	.0	.0	1
Dallas [1]	512	5	45	999.7	1,019.0	.....	43.4	−4.3	74	8	54	16	19	33	37	668	33	70	.65	−1.7	.35	6	10.6	s.	31	nw.	24	7	9	15	6.4	T	.0	0
Fort Worth [1]	679	40	56	993.9	1,018.6	−1.4	43.4	−3.1	74	29	54	16	19	33	33	672	34	72	.55	−1.3	.47	6	11.9	nw.	32	n.	30	9	7	15	6.2	T	.0	1
Galveston [2]	54	106	114	1,015.9	1,018.0	−2.0	55.0	−1.4	73	2	62	28	20	48	25	327	48	84	5.08	+1.3	2.13	10	11.4	n.	29	nw.	10	6	9	16	6.5	.0	.0	3
Houston [2]	138	157	190	1,012.9	1,018.3	.....	52.4	−2.0	78	9	61	27	20	44	33	396	44	80	7.58	+3.4	3.38	12	10.9	nw.	30	se.	22	8	8	15	6.2	.0	.0	2
Palestine	510	64	72	1,000.3	1,018.6	−1.4	47.1	−2.8	74	8	56	19	19	38	31	556	36	66	3.91	+.2	2.74	8	7.9	s.	22	nw.	30	6	10	15	6.5	T	.0	0
Port Arthur [2]	34	59	134	1,016.6	1,018.0	.....	51.9	−2.8	73	30	60	26	20	44	26	409	42	81	7.81	+2.6	2.98	13	13.3	n.	38	e.	12	8	9	14	6.3	.0	.0	3
San Antonio [1]	693	8	51	993.2	1,018.3	−1.3	50.8	−2.9	81	24	63	26	20	39	41	444	39	69	1.18	−.4	.78	6	8.4	ne.	30	ne.	9	8	8	15	6.3	.0	.0	2

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR DECEMBER 1945—Continued

District and station	Elevation of instruments: Barometer above sea level	Thermometer above ground	Anemometer above ground	Pressure: Station	Sea level	Departure from normal	Temperature of the air: Mean	Departure from normal	Maximum	Date	Mean maximum	Minimum	Date	Mean minimum	Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	Days with 0.01 inch or more	Wind: Average hourly velocity	Prevailing direction	Maximum velocity: Miles per hour	Direction	Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
OHIO VALLEY AND TENNESSEE	*Ft.*	*Ft.*	*Ft.*	*Mb.*	*Mb.*	*Mb.*	°*F.*	°*F.*	°*F.*		°*F.*	°*F.*		°*F.*	°*F.*		°*F.*	%	*In.*	*In.*	*In.*		*Mi.*								*0–10*	*In.*	*In.*	
				29.6		−5.8												82	3.00	−0.6											7.4			
Chattanooga [1]	762	6	66	990.2	1,018.6	−2.7	35.8	−5.1	60	8	43	11	17	28	35	907	30	84	6.29	+1.2	2.42	14	7.8	ne.	30	ne.	4	7	4	20	7.2	1.0	.0	0
Knoxville [1]	995	27	53	982.7	1,019.6	−.7	35.0	−4.0	62	25	43	12	20	27	35	929	28	80	5.48	+1.0	1.56	14	8.5	ne.	43	ne.	4	7	6	18	6.9	5.1	T	0
Memphis [4]	399	5	86	1,003.4	1,018.3	−2.7	37.2	−5.2	65	8	45	11	20	30	33	862	30	77	4.24	−.3	.96	11	9.1	s.	30	n.	4	7	6	18	6.8	6.8	.0	1
Nashville [1]	546	5	72	998.0	1,018.6	−2.4	34.4	−6.6	58	8	42	8	20	27	29	953	28	80	3.91	−.3	1.00	15	9.1	s.	30	n.	4	6	5	20	7.3	9.4	.0	0
Lexington [1]	989	4	28	981.4	1,019.0	−1.7	29.1	−6.7	53	9	37	2	16	21	28	1,111	24	82	2.28	−1.5	.69	13	----	sw.	----	----------	----	5	6	20	7.4	9.0	T	0
Louisville [1]	525	166	120	998.6	1,018.6	−2.1	30.2	−6.1	58	8	38	3	20	22	28	1,078	24	79	2.34	−1.4	1.45	10	9.0	sw.	28	n.	4	3	10	18	7.6	6.3	T	1
Evansville [1]	431	11	40	1,002.4	1,018.6	−1.7	29.0	−5.8	62	8	38	0	20	21	36	1,113	24	82	2.14	−1.4	.96	11	9.2	w.	26	n.	4	5	6	20	7.2	6.5	.7	1
Indianapolis [1]	823	5	54	986.8	1,018.0	−2.0	23.9	−7.0	57	8	32	−5	20	16	31	1,278	20	85	2.49	------	1.50	10	11.0	w.	37	sw.	25	5	6	20	7.5	8.2	T	1
Terre Haute [2]	575	68	149	997.0	1,019.0	------	27.0	−6.5	59	8	34	−1	19	20	29	1,179	20	82	2.46	−.5	1.39	11	10.0	w.	26	sw.	25	6	7	18	7.2	9.9	.1	0
Cincinnati [2]	627	11	51	994.6	1,018.3	−2.0	28.5	−4.9	57	8	35	1	16	22	31	1,131	22	77	2.05	−.9	1.13	14	8.4	sw.	23	no.	4	5	6	20	7.5	8.5	T	0
Columbus [2]	822	90	110	987.1	1,018.0	−2.0	26.6	−5.8	52	8	32	−3	16	21	25	1,192	20	84	1.66	−1.1	.86	13	10.1	s.	29	sw.	26	4	7	20	7.7	7.7	.1	0
Dayton [1]	1,003	6	55	980.0	1,018.0	------	23.9	−7.4	51	8	31	−4	17	17	27	1,275	20	88	2.33	−.4	1.71	7	12.2	w.	38	w.	9	4	8	19	7.6	11.1	T	0
Elkins [1]	1,947	4	45	946.2	1,018.6	−1.4	26.3	−5.4	54	9	34	0	24	18	37	1,198	23	90	1.77	−1.7	.41	19	7.4	w.	30	w.	16	3	6	22	7.9	20.2	2.4	0
Parkersburg	637	77	84	993.9	1,018.3	−2.4	29.8	−5.4	54	9	36	3	16	24	28	1,091	22	76	2.60	−.3	.90	17	6.8	sw.	26	w.	15	4	6	21	7.6	12.4	T	0
Pittsburgh [1]	842	39	54	985.8	1,017.3	−2.3	26.8	−5.2	51	9	33	−2	16	21	29	1,189	20	80	2.41	−.4	.59	24	10.9	sw.	34	nw.	25	4	5	22	7.9	17.1	1.4	0
LOWER LAKES																																		
				23.7		−4.8												83	2.07	−0.7											7.5			
Buffalo [1]	768	34	96	986.8	1,016.3	−1.7	23.8	−5.0	47	8	30	−5	24	17	34	1,277	19	84	5.07	+1.7	2.16	20	12.6	w.	54	s.	25	1	12	18	7.8	51.1	2.0	0
Canton	448	10	61	998.3	1,015.9	------	17.2	−4.6	45	9	26	−20	22	8	41	1,483	14	90	2.05	−.6	.68	12	7.4	w.	21	w.	27	8	9	14	6.3	12.6	2.8	0
Oswego	335	71	85	1,003.4	1,016.6	−1.4	24.7	−3.4	49	9	30	4	24	19	23	1,255	17	72	1.75	−1.8	.53	16	10.8	se.	29	se.	25	6	7	18	7.3	12.8	2.1	0
Rochester [1]	523	5	69	996.3	1,016.9	−1.1	23.0	−4.8	47	9	30	−6	24	16	27	1,303	18	82	2.00	−.7	.82	16	10.3	sw.	33	sw.	26	4	11	16	7.3	11.0	.6	0
Syracuse [1]	596	5	57	993.6	1,016.8	−1.7	22.6	−4.8	50	9	30	−6	24	18	31	1,313	18	81	.85	−2.2	.19	16	9.3	sw.	31	w.	27	3	11	17	7.3	7.7	T	0
Erie [2]	714	57	81	989.5	1,016.6	−1.7	27.6	−4.3	50	8	32	1	16	23	27	1,162	22	85	1.97	−.9	.38	20	10.0	sw.	33	se.	25	2	7	22	8.1	21.8	T	0
Cleveland [1]	762	27	54	988.2	1,017.3	−1.7	25.2	−3.9	50	8	31	−3	16	19	26	1,233	20	82	1.36	−1.1	.44	16	11.8	sw.	32	sw.	9	2	6	23	8.0	18.0	.9	0
Sandusky	629	5	67	993.2	1,017.6	−1.4	25.9	−5.3	52	8	32	−2	16	20	24	1,215	----	----	1.87	−.4	.70	12	10.2	sw.	26	sw.	26	5	6	20	7.3	10.4	.4	0
Toledo [1]	628	5	47	993.2	1,017.6	−1.0	23.0	−6.1	52	8	30	−7	18	16	30	1,306	18	82	1.75	−.6	1.17	9	12.1	sw.	32	sw.	26	2	9	20	7.7	5.5	T	0
Fort Wayne [1]	857	5	33	984.8	1,017.3	------	22.6	−6.0	53	8	30	−6	20	16	28	1,314	18	88	2.00	−.6	.96	13	9.5	w.	26	sw.	25	5	8	18	7.4	8.1	.8	0
Detroit [1]	730	5	78	989.2	1,017.3	−1.0	24.7	−4.2	49	8	30	−2	16	19	22	1,250	20	80	2.08	−.3	1.19	12	9.9	sw.	28	nw.	9	1	11	19	7.8	6.8	T	0
UPPER LAKES																																		
				20.2		−3.2												82	1.37	−0.6											7.7			
Alpena	609	5	89	992.2	1,015.9	−.7	23.0	−1.8	43	8	28	5	18	18	18	1,301	19	84	1.20	−.9	.50	13	10.3	nw.	29	se.	25	1	10	20	7.7	15.5	6.5	0
Escanaba	612	51	72	993.2	1,016.9	.0	20.6	−1.8	44	7	26	−4	18	15	21	1,379	14	76	.78	−1.0	.46	8	11.2	nw.	33	n.	31	6	8	17	7.1	5.5	4.1	0
Grand Rapids [2]	707	70	244	989.5	1,016.6	−1.0	25.4	−3.1	55	8	31	6	23	20	22	1,229	19	86	1.49	−1.1	.42	15	10.5	s.	30	e.	24	1	8	22	8.1	12.9	1.6	0
Lansing [2]	878	5	90	983.1	1,016.6	------	22.9	−4.3	51	8	29	−3	16	16	24	1,303	18	82	1.28	−.8	.51	17	8.3	sw.	21	w.	9	1	6	24	8.5	8.7	2.4	0
Marquette	734	44	73	987.5	1,015.9	−.7	21.0	−1.6	44	7	26	−1	17	16	19	1,359	14	76	2.49	−.2	.91	12	9.3	w.	29	sw.	5	3	4	24	8.3	21.7	17.3	0
Sault Sainte Marie [1]	614	11	52	991.9	1,015.9	.0	16.9	−1.9	38	6	24	−10	23	10	24	1,495	14	88	1.20	−1.0	.22	12	9.2	e.	28	w.	9	2	5	24	8.3	19.9	9.0	0
Chicago [1]	673	5	36	991.5	1,017.3	−1.3	22.2	−4.7	53	8	29	−7	18	15	27	1,331	17	82	1.65	−.4	.52	10	10.3	w.	24	w.	15	7	5	19	7.3	11.1	2.0	0
Green Bay	617	5	32	993.9	1,018.3	+1.0	17.6	−4.7	42	8	24	−11	18	11	31	1,466	11	74	1.37	−.3	.75	8	8.0	s.	21	sw.	9	3	11	17	7.2	10.9	8.0	0
Milwaukee [1]	681	33	66	990.9	1,016.9	−1.1	20.5	−4.2	50	8	28	−12	18	14	26	1,379	14	80	1.47	−.2	.48	10	12.9	nw.	37	e.	24	6	6	19	7.1	11.9	2.5	0
Duluth [1]	1,133	5	47	973.9	1,017.6	.0	11.8	−4.1	41	6	19	−16	22	5	26	1,652	6	89	.81	−.3	.44	12	11.9	nw.	49	nw.	9	4	6	21	7.8	7.1	4.7	0
NORTH DAKOTA																																		
				6.9		−5.0												83	0.71	+0.1											7.5			
Fargo [1]	940	5	43	983.7	1,020.3	+1.7	6.8	−4.7	44	6	16	−22	22	−2	34	1,803	4	84	.66	−.1	.47	9	11.6	n.	40	n.	8	5	7	19	7.2	7.9	4.4	0
Bismarck [1]	1,677	5	43	956.3	1,020.7	+2.1	8.6	−4.2	51	5	18	−24	18	0	31	1,740	4	83	.39	−.2	.18	11	9.0	nw.	29	nw.	8	5	4	22	7.8	6.5	5.7	0
Devils Lake	1,478	11	44	963.1	1,020.3	+2.3	3.2	−6.3	40	4	10	−28	22	−4	26	1,916	−2	78	1.12	+.6	.68	12	8.1	n.	29	n.	8	4	10	17	7.3	15.4	11.8	0
Grand Forks [1]	832	4	41	987.8	1,020.7	------	4.2	----------	47	4	14	−30	22	−5	30	1,887	2	88	1.02	------	.36	13	----	nw.	----	----------	----	6	6	19	----	18.2	14.1	0
Williston	1,878	42	50	948.5	1,019.3	+1.3	9.0	−4.8	45	5	16	−24	16	2	26	1,733	4	84	.66	+.1	.50	9	6.0	sw.	23	e.	22	4	5	22	7.8	6.1	7.2	0
UPPER MISSISSIPPI																																		
Minneapolis-St. Paul [1]	919	43	74	982.7	1,018.0	−.6	20.6	−5.9	48	7	20	−15	18	7	25	1,602	10	83	1.82	+0.1	.80	10	10.4	nw.	29	w.	9	6	5	20	7.0	14.6	11.1	0
Springfield, Minn	1,027	4	42	979.7	1,019.0	------	13.4	−6.2	42	7	19	−13	18	5	28	1,637	8	86	1.41	+.4	.59	11	----	nw.	----	----------	----	9	4	18	----	17.2	5.5	0
La Crosse [1]	714	5	29	990.2	1,018.3	−.3	12.2	----------	42	8	22	−16	18	7	32	1,508	12	86	1.88	+.5	.80	11	9.1	nw.	26	w.	8	4	5	22	7.6	12.0	3.5	0
Madison [2]	974	70	78	980.0	1,017.6	−1.0	14.4	−6.0	43	7	22	−16	18	7	32	1,508	12	86	1.86	+.5	.80	11	9.1	nw.	26	w.	8	4	5	22	7.6	12.0	3.5	0
Charles City	1,017	10	51	980.0	1,019.0	−.3	17.8	−8.0	45	7	23	−11	18	12	24	1,465	13	84	1.30	−.3	.53	11	8.1	nw.	21	se.	23	5	6	20	7.4	10.8	5.2	0
Moline [1]	606	6	50	995.3	1,019.0	−.3	15.0	−5.4	45	7	22	−14	18	8	25	1,550	----	----	1.84	+.5	.77	13	6.9	nw.	21	se.	23	9	6	16	6.3	7.5	5.7	1
Des Moines [2]	860	5	99	986.5	1,019.0	−.6	19.7	−6.0	51	7	27	−8	17	13	26	1,402	16	86	1.69	+.2	.61	11	10.4	w.	28	nw.	9	5	7	19	7.3	11.4	4.5	0
Dubuque	699	60	79	991.5	1,018.3	−1.0	19.4	−6.6	56	7	26	−5	15	13	27	1,414	13	81	2.73	+1.5	1.10	11	10.7	nw.	26	nw.	8	4	10	17	7.2	12.9	6.2	1
Burlington [1]	702	4	36	991.5	1,018.3	−1.7	19.2	−5.5	53	7	26	−9	18	13	26	1,419	14	78	.83	−.6	.30	7	6.0	nw.	19	nw.	9	6	6	19	7.0	6.9	3.1	0
Cairo	357	5	99	1,005.1	1,018.3	−2.7	20.0	−7.3	50	8	27	−7	17	13	26	1,398	16	90	2.03	+.4	.58	14	11.1	nw.	26	nw.	9	8	2	21	7.1	8.4	1.6	0
Peoria [1]	609	5	26	995.3	1,018.6	−1.0	33.4	−4.4	63	8	40	7	20	27	25	983	----	----	1.82	−1.6	.61	9	9.3	sw.	29	n.	4	8	9	14	6.3	4.5	.3	1
Springfield, Ill. [2]	636	5	191	994.2	1,018.6	−1.4	21.6	−5.5	56	8	29	−8	17	14	25	1,347	16	82	2.39	+.6	1.05	14	10.5	w.	26	w.	15	6	6	19	7.0	7.0	.6	0
St. Louis [2]	568	35	303	997.6	1,019.0	−1.3	25.2	−6.5	60	8	31	1	20	19	24	1,234	18	84	2.22	.0	1.00	12	12.6	w.	33	e.	23	8	3	20	6.9	10.7	3.6	0
				28.6		−6.3	26.6	−6.3	67	8	35	5	19	22	----	1,130	----	73	1.66	−.5	.57	11	11.9	nw.	33	sw.	8	6	8	17	----	8.3	1.6	0
MISSOURI VALLEY																																		
				22.8		−6.2												79	1.22	0.0											7.0			
Columbia, Mo. [2]	784	6	66	989.2	1,018.6	−1.4	26.4	−7.6	62	8	34	−3	19	19	34	1,195	17	73	1.44	−.4	.51	10	8.1	w.	20	nw.	30	8	9	14	6.6	11.4	T	1
Kansas City [1]	963	39	76	982.1	1,018.6	−1.4	25.8	−6.7	60	7	34	−4	19	18	30	1,216	18	74	1.42	+.2	.69	9	10.4	nw.	26	nw.	30	7	5	19	7.1	14.8	.9	1
St. Joseph [2]	967	11	40	982.4	1,019.3	------	24.2	−5.4	60	7	32	−7	19	17	29	1,268	16	77	1.40	+.1	.65	8	9.0	nw.	24	nw.	8	9	8	14	6.1	10.5	2.1	1
Springfield, Mo. [1]	1,324	5	67	969.2	1,018.6	−1.7	29.5	−6.0	62	8	38	−5	19	21	32	1,099	23	83	.51	−1.8	.21	6	13.4	nw.	42	nw.	30	6	6	19	6.8	3.1	.6	0
Topeka	987	65	87	982.1	1,019.3	------	25.4	−6.6	62	7	34	−5	19	17	34	1,224	16	73	1.31	+.3	.56	7	9.0	nw.	26	nw.	31	6	9	16	6.8	14.5	.8	0
Lincoln [2]	1,189	17	81	974.3	1,019.3	−.7	22.0	−5.6	60	7	30	−8	19	14	32	1,333	15	80	2.14	+1.3	1.04	10	9.4	nw.	27	nw.	29	1	14	16	7.4	22.3	3.5	1
Omaha [1]	1,105	5	68	977.3	1,019.3	−.3	19.2	−7.2	58	7	27	−10	19	12	31	1,415	14	79	1.79	+.9	.69	9	11.4	nw.	33	nw.	31	3	9	19	7.4	12.0	4.3	1
Valentine	2,598	46	54	923.1	1,019.3	.0	20.2	−4.4	57	7	30	−14	15	10	39	1,387	13	80	.19	−.4	.12	3	8.5	w.	34	nw.	29	4	8	19	7.2	7	.0	0
Sioux City [1]	1,138	5	40	976.0	1,019.3	------	16.0	−5.6	56	7	25	−12	31	7	32	1,517	11	78	1.66	+.8	.68	11	10.2	nw.	29	nw.	8	4	8	19	7.6	10.8	8.0	0
Huron [1]	1,301	5	41	970.2	1,020.0	+.7	12.4	−6.3	45	7	21	−21	18	4	34	1,632	9	88	.79	+.2	.36	12	10.8	n.	31	nw.	8	8	3	20	7.3	9.7	3.2	0
NORTHERN SLOPE																																		
				22.3		−1.6												79	0.82	+0.1											7.5			
Billings [1]	3,570	16	40	868.9	1,017.3	------	23.6	−2.6	50	5	32	−14	15	16	32	1,278	18	78	.66	------	.19	8	12.2	sw.	38	w.	7	2	9	20	7.9	9.5	T	0
Havre	2,507	11	67	925.2	1,018.3	+.7	15.8	−4.6	60	4	26	−33	15	6	36	1,528	11	82	.91	+.3	.56	9	8.3	sw.	31	sw.	5	4	10	17	7.3	8.5	1.0	0
Helena [1]	4,124	5	43	871.7	1,019.3	−1.0	21.3	−1.4	50	4	31	−11	18	12	35	1,355	16	81	.60	+.1	.19	9	6.7	w.	42	nw.	29	3	4	24	8.1	9.0	.4	0
Missoula [1]	3,263	4	32	901.8	1,020.0	------	24.1	+2.7	45	29	31	−12	19	17	26	1,269	22	90	1.51	+.6	.40	14	4.3	se.	25	se.	4	2	2	27	8.4	13.2	2.2	0
Kalispell	2,973	48	56	910.9	1,017.3	−1.0	26.1	+1.2	46	29	31	1	20	21	17	1,205	24	88	2.12	+.7	.74	16	4.2	nw.	23	sw.	7	1	4	26	8.7	18.6	2.2	0
Miles City [1]	2,371	5	78	930.9	1,018.6	−.7	17.7	----------	53	5	27	−26	15	8	36	1,467	13	83	.33	------	.21	8	----	w.	----	----------	----	1	3	27	8.5	4.1	T	0
Rapid City [1]	3,259	5	63	899.8	1,018.3	−.7	22.4	−2.7	57	4	32	−11	15	12	37	1,326	14	74	.17	−.3	.11	3	12.6	nw.	59	nw.	29	2	10	19	7.6	1.6	.0	0
Cheyenne [1]	6,094	5	40	808.7	1,016.9	−2.1	25.8	−2.7	55	4	37	−6	15	15	34	1,217	12	56	.39	−.3	.11	7	13.5	nw.	46	w.	28	7	5	19	6.7	2.8	.0	0
Lander	5,352	60	68	832.7	1,020.0	−1.0	17.4	−3.0	58	28	30	−13	19	5	42	1,472	9	70	.12	−.6	.57	2	4.4	sw.	37	w.	28	11	10	10	5.1	2.2	2.0	0
Sheridan [1]	3,790	5	38	881.8	1,018.0	------	24.6	+1.8	54	5	35	−9	14	14	48	1,255	16	78	.79	+.2	.21	12	7.7	nw.	42	nw.	7	0	9	22	7.9	7.0	.0	0
North Platte [2]	2,821	11	51	915.7	1,019.0	−.3	22.0	−4.7	61	7	32	−10	19	12	36	1,328	14	85	.89	+.3	.41	4	7.1	w.	23	w.	7	7	8	16	6.6	9.9	T	0

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR DECEMBER 1945—Continued

District and station	Elevation of instruments: Barometer above sea level	Thermometer above ground	Anemometer above ground	Pressure: Station	Sea level	Departure from normal	Temperature of the air: Mean	Departure from normal	Maximum	Date	Mean maximum	Minimum	Date	Mean minimum	Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	Days with 0.01 inch or more	Wind: Average hourly velocity	Prevailing direction	Maximum velocity: Miles per hour	Direction	Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
MIDDLE SLOPE	*Ft.*	*Ft.*	*Ft.*	*Mb.*	*Mb.*	*Mb.*	°*F.*	°*F.*	°*F.*		°*F.*	°*F.*		°*F.*	°*F.*		°*F.*	%	*In.*	*In.*	*In.*		*Mi.*								*0–10*	*In.*	*In.*	
							30.0	−4.0										68	0.42	−0.5											5.8			
Denver [3]	5,292	106	113	834.7	1,015.9	−2.7	32.4	+.1	64	4	43	2	15	22	42	1,006	13	50	.10	−.6	.02	2	7.7	s.	30	nw.	29	9	12	10	5.5	1.2	.0	0
Pueblo [1]	4,690	5	36	854.7	1,018.6	.0	27.0	−3.1	67	29	44	−19	19	11	53	1,175	12	65	.36	−.1	.27	4	7.3	w.	38	w.	29	10	11	10	5.4	8.3	.0	0
Concordia	1,392	50	58	967.2	1,019.3	−.3	24.6	−6.1	64	7	33	−7	19	16	35	1,255	18	79	1.01	+.4	.62	5	7.7	n.	22	nw.	25	9	7	15	6.0	12.3	.7	1
Dodge City [1]	2,509	5	58	927.2	1,018.3	−1.0	28.9	−3.7	61	7	41	−3	18	17	40	1,120	16	68	.54	.0	.51	2	14.5	nw.	40	n.	6	10	10	11	5.7	.0	3.8	0
Wichita [1]	1,358	6	64	968.2	1,018.6	−1.0	28.0	−6.6	62	7	36	−2	19	20	35	1,143	18	72	.62	−.4	.29	7	12.8	nw.	31	nw.	31	9	9	13	6.1	5.4	.0	1
Oklahoma City [3]	1,214	10	47	973.6	1,018.3	−1.3	35.9	−3.4	67	7	46	7	19	26	33	903	23	67	.08	−1.4	.04	5	9.4	n.	22	n.	18	8	12	11	5.7	T	.0	0
Tulsa [1]	674	10	60	993.6	1,018.3	.....	33.3	−5.5	65	7	43	4	19	24	41	984	24	72	.26	−1.6	.12	6	10.8	n.	29	nw.	24	10	9	12	5.9	1.1	.0	0
SOUTHERN SLOPE																																	
							43.0	−0.4										59	0.36	−0.5										5.4			
Abilene [1]	1,738	4	59	955.3	1,017.3	−2.3	43.3	−1.8	75	29	56	17	19	31	48	674	30	64	.64	−.7	.59	3	12.7	s.	31	s.	12	11	7	13	5.6	1.5	.0	0
Amarillo [1]	3,676	5	42	888.3	1,016.9	−2.1	36.4	+.9	71	29	51	5	19	22	44	891	20	58	T	−.8	T	0	12.5	sw.	42	w.	23	15	8	8	4.8	T	.0	0
Del Rio	960	63	71	983.1	1,017.3	−2.0	51.5	−.7	80	24	63	27	15	40	47	424	36	60	.06	−.6	.05	3	7.9	nw.	27	n.	9	9	11	11	5.8	.0	.0	0
Roswell	3,566	75	85	893.0	1,016.9	−1.4	41.0	−.2	76	29	55	13	11	27	48	742	24	55	.74	+.1	.65	3	7.5	s.	36	nw.	24	12	9	10	5.2	5.5	.0	0
SOUTHERN PLATEAU																																	
							43.9	−0.4										51	0.58	−0.3										5.3			
El Paso [1]	3,778	39	85	887.2	1,016.6	−.3	45.4	+1.7	71	29	58	23	16	33	38	607	24	44	.05	−.5	.05	2	9.8	n.	40	sw.	23	12	11	8	5.2	T	.0	0
Albuquerque [1]	5,314	5	45	838.1	1,018.3	.....	33.4	−1.1	58	29	45	7	16	22	35	982	18	56	.35	−.1	.20	2	8.5	n.	37	nw.	30	10	10	11	5.4	2.6	.0	0
Flagstaff	6,907	36	51	789.7	1,021.3	+3.3	28.2	−1.4	62	29	43	−14	13	14	52	1,141	14	58	2.27	+.3	1.38	5	.....	w.	.....	.....	.....	11	7	13	5.9	9.8	.0	0
Phoenix [3]	1,107	39	87	978.0	1,017.6	+.3	51.2	−.8	74	30	65	27	14	38	35	430	32	57	.31	−.7	.30	3	5.1	e.	18	sw.	23	12	5	14	5.6	.0	.0	0
Tucson [1]	2,555	5	39	927.9	1,016.6	.....	50.4	−.3	75	31	69	22	14	36	41	451	29	50	.47	−.5	.23	3	.....	sc.	.....	.....	.....	13	4	14	5.3	.0	.0	0
Yuma	142	9	54	1,012.5	1,017.3	−.3	55.0	−.2	77	31	67	34	16	43	32	314	30	43	.05	−.5	.04	2	5.6	n.	22	n.	9	16	8	7	4.3	.0	.0	0
MIDDLE PLATEAU																															6.9			
							29.8	−0.1										74	0.92	0.0													
Reno [1]	4,527	20	52	862.9	1,019.0	−2.0	33.4	+1.5	62	31	45	−5	14	22	40	977	26	75	1.58	+.6	.56	9	6.1	s.	56	s.	4	3	7	21	7.5	5.8	.0	0
Tonopah	6,090	9	20	813.4	1,018.0	.....	31.6	.0	54	29	39	11	13	24	23	1,038	24	74	.24	−.1	.11	4	.....	nw.	.....	.....	.....	6	11	14	.....	4.0	.0	0
Winnemucca	4,339	5	56	868.9	1,020.3	−1.7	31.0	+1.0	58	28	40	0	14	22	31	1,051	24	74	1.51	+.4	.53	13	8.2	ne.	28	s.	4	3	5	23	8.2	4.8	.0	0
Modena	5,473	10	46	834.4	1,020.3	+.3	27.3	−.8	61	29	40	−13	13	15	46	1,172	.....	.....	.74	−.1	.41	4	7.3	w.	19	sw.	5	14	9	8	4.5	4.9	.0	0
Salt Lake City [1]	4,227	32	58	869.3	1,021.3	+.3	30.0	−.2	56	29	39	5	15	21	25	1,087	22	74	.92	−.5	.21	9	8.1	se.	33	s.	4	6	6	19	7.1	5.2	.0	1
Grand Junction	4,602	60	68	862.2	1,020.7	+1.4	25.5	−2.0	48	7	35	−5	15	16	33	1,226	18	72	.53	−.1	.27	7	3.8	nw.	17	w.	8	6	5	20	7.1	3.5	.0	0
NORTHERN PLATEAU																															8.4			
						3	0.1	+0.2										83	1.62	0.0													
Baker [2]	3,471	36	54	896.0	1,020.0	−1.3	27.8	+.5	51	28	35	−3	18	21	26	1,151	22	86	1.39	−.3	.46	11	5.7	se.	26	sw.	6	2	5	24	8.4	7.8	.0	0
Boise [1]	2,739	5	49	922.5	1,021.0	−1.7	30.8	+.5	59	28	38	0	18	24	25	1,056	25	80	2.24	+.7	.70	15	9.6	se.	34	nw.	7	3	5	23	7.8	8.3	.0	0
Pocatello [1]	4,478	5	31	864.2	1,022.4	.0	25.1	−.2	53	28	34	−15	19	16	29	1,237	20	81	.72	−.4	.15	13	8.9	sw.	39	s.	4	3	5	23	7.8	9.2	.0	0
Spokane [1]	1,929	27	42	947.5	1,018.0	−.6	29.8	−.7	51	4	35	6	12	24	21	1,093	26	86	2.00	−.2	.58	14	5.5	ne.	32	sw.	6	2	1	28	9.0	8.8	.0	0
Walla Walla	991	57	65	981.7	1,018.3	−1.7	34.9	−.6	63	3	40	9	19	30	23	933	.....	.....	1.54	−.5	.51	16	5.1	s.	28	se.	3	0	4	27	9.0	4.1	.0	0
Yakima	1,076	58	67	978.3	1,018.0	.....	32.2	+1.5	52	6	37	15	14	27	19	1,014	.....	.....	1.81	+.5	.52	12	3.9	se.	21	sw.	6	3	3	25	8.5	4.5	.0	0
NORTH PACIFIC COAST																															8.0			
							43.0	+1.3										85	6.99	−0.2													
North Head	211	5	55	1,005.1	1,012.9	−4.0	44.4	+.3	56	4	49	31	18	40	17	639	40	84	9.20	−.3	2.05	24	16.1	e.	62	sw.	4	3	6	22	8.0	.0	.0	0
Seattle [3]	125	90	321	1,009.8	1,014.2	−2.1	43.0	+.4	62	4	48	28	15	39	21	678	37	86	5.49	−.1	1.02	19	9.2	se.	52	s.	4	7	4	20	7.4	.0	.0	0
Tacoma	194	172	201	1,007.1	1,014.2	−2.1	41.4	+.8	62	4	46	22	18	36	19	737	.....	.....	6.45	−.3	2.05	22	6.9	s.	49	s.	4	5	6	20	7.4	T	.0	1
Tatoosh Island	86	9	61	1,009.1	1,012.2	−2.4	43.8	−.1	55	4	47	36	19	40	16	658	40	86	9.45	−3.9	1.86	21	19.5	e.	64	sw.	4	4	5	22	7.7	T	.0	1
Medford [1]	1,329	29	58	968.8	1,017.3	.....	41.0	+2.9	60	29	48	16	14	34	28	743	36	82	3.95	+1.1	2.05	19	.....	s.	.....	.....	.....	2	1	28	8.6	.4	.0	0
Portland, Oreg. [3]	154	68	106	1,009.8	1,015.2	−3.1	42.6	+1.4	65	4	47	26	14	38	20	699	36	86	6.04	−.7	1.24	23	6.4	e.	32	s.	4	1	4	26	8.6	.0	.0	0
Roseburg	510	45	76	997.3	1,015.9	−3.7	45.0	+3.2	63	3	51	23	14	39	29	618	41	86	8.33	+3.0	2.96	20	3.6	s.	30	se.	4	1	5	25	8.4	.0	.0	0
MIDDLE PACIFIC COAST																															8.0			
							49.2	+1.2										81	8.28	+3.8													
Eureka	60	72	88	1,015.2	1,017.3	−2.7	50.2	+2.0	66	3	56	31	13	44	22	460	44	79	9.93	+3.6	2.09	22	7.8	se.	34	s.	3	3	2	26	8.5	.0	.0	1
Red Bluff [1]	353	5	23	1,005.4	1,018.0	.....	46.5	+.4	66	29	54	25	14	39	31	573	40	78	7.85	+3.4	2.66	14	8.9	nw.	32	se.	27	3	4	24	8.1	T	.0	1
Sacramento	66	92	115	1,016.6	1,018.6	−2.1	47.2	+1.0	62	22	53	29	14	42	20	548	44	86	5.50	+2.5	1.74	12	7.1	se.	27	se.	24	3	3	25	8.4	.0	.0	3
San Francisco [3]	155	112	132	1,012.9	1,018.3	−1.7	52.8	+1.5	68	30	57	41	14	48	19	380	45	80	9.84	+5.9	3.14	15	7.0	n.	29	se.	4	5	8	18	7.2	.0	.0	3
SOUTH PACIFIC COAST																															6.9			
							54.0	+1.6										70	3.26	+1.3													
Fresno [1]	327	5	34	1,007.8	1,019.6	−.7	47.6	+2.5	68	3	56	27	14	40	26	538	43	84	1.11	−.3	.31	14	4.0	se.	19	se.	4	2	4	25	8.3	.0	.0	0
Los Angeles	338	223	250	1,006.1	1,018.0	−.3	57.2	+.6	86	30	66	41	12	49	39	246	38	56	5.05	+2.4	3.01	8	7.5	ne.	26	e.	21	8	11	12	6.0	.0	.0	0
San Diego [1]	87	20	55	1,015.2	1,018.0	−.3	57.3	+1.8	75	19	66	40	13	48	28	239	46	70	3.62	+1.8	3.07	6	5.6	ne.	26	w.	23	9	5	17	6.4	.0	.0	1
PANAMA CANAL																																	
Balboa Heights	118	6	92	.....	[3] 1,010.5	+.7	79.4	−.6	90	14	86	70	10	73	18	0	72	[3] 85	7.51	+2.7	2.51	15	6.5	nw.	21	n.	23	4	7	20	6.2	.0	.0	0
Cristobal	27	47	97	.....	[3] 1,010.8	+.6	80.2	−.2	88	29	84	72	5	76	11	0	73	[3] 82	20.59	+8.7	4.85	21	6.9	n.	30	n.	5	2	16	13	6.9	.0	.0	3
ALASKA																																	
Anchorage [1]	132	6	44	997.3	1,002.4	.....	13.0	−.7	39	12	20	−15	7	6	23	1,612	12	85	.13	−.7	.08	4	4.3	e.	17	w.	11	8	5	18	6.6	2.1	3.7	0
Fairbanks [1]	455	5	63	990.9	1,009.5	.....	−5.8	+1.4	26	11	3	−34	24	−15	40	2,198	−10	79	.25	−.3	.14	5	3.3	nw.	12	e.	4	8	10	13	6.1	3.0	16.6	0
Juneau [1]	80	6	30	1,004.1	1,007.1	.....	28.2	.....	40	30	33	1	23	23	25	1,142	26	87	2.57	.....	.56	22	7.3	e.	34	se.	10	3	1	27	8.5	22.3	.8	0
Nome	22	25	56	1,007.1	1,007.8	.....	3.4	−4.1	36	16	11	−28	28	−4	36	1,908	0	82	.84	−.3	.40	8	8.2	ne.	31	e.	17	12	6	13	5.4	6.1	10.6	0
Bethel	28	5	31	.....	1,002.4	.....	6.4	−.8	40	20	12	−23	30	0	30	1,805	4	90	.41	−.4	.18	9	10.8	n.	29	.....	12	10	5	16	6.1	2.1	.....	0
Gambell	32	5	32	1,008.8	1,009.8	.....	6.7	−2.5	31	17	10	−18	28	3	19	1,809	5	94	.48	−.2	.....	11	19.6	nne.	43	n.	31	1	1	29	8.9	3.6	7.6	0
Ketchikan	75	69	90	1,006.8	1,007.5	.....	36.4	+1.1	48	31	40	26	17	33	14	885	34	88	9.19	−6.8	2.12	19	6.1	ne.	27	e.	9	1	2	28	9.0	6.5	.0	0
Kotzebue	20	5	31	1,010.2	1,010.8	.....	−4.6	−.8	28	19	2	−36	30	−12	32	2,161	− 6	88	.17	−.1	.....	9	9.9	e.	39	e.	11	5	7	19	6.9	2.6	11.4	0
McGrath	341	5	31	.....	1,007.1	.....	−2.4	.....	30	11	4	−37	24	−9	28	2,085	−2	94	.22	.....	.06	7	.....	.....	.....	.....	.....	3	7	21	7.5	3.6	15.2	0
Northway	1,718	5	30	945.5	1,012.2	.....	.....	.....	10	21	−4	−32	1	−18	25	2,345	−12	87	.12	.....	.06	6	1.7	e.	13	e.	7	3	9	19	7.6	1.7	8.9	0

[1] Data are airport records.

[2] Barometric data (adjusted to old city elevation) and hygrometric data from airport; otherwise city office records.

[3] Observations taken hourly.

[4] Pressure (adjusted to old city elevation), temperature, and hygrometric data from airport; otherwise city office records.

[5] Temperature and precipitation from city records, other data from airport.

NOTE.—Except as indicated by notes [1], [2], [4], and [5] data in table are city office records.

SEVERE LOCAL STORMS FOR DECEMBER 1945

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the UNITED STATES METEOROLOGICAL YEARBOOK]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
	Dec.1945						
Olympia, Wash.	4	3:30-3:44 p. m.				Wind and rain	Wind velocities rose to 50 miles per hour, with frequent gusts of 70 miles per hour. Minor damage to trees and property.
Havre, Mont.	7					Snow and wind	From 4 to 6 inches of snow fell, drifting in some areas to make secondary country roads impassable.
Buffalo, N. Y., and vicinity.	14–17	4:30 p. m. of 14th–8:30 p. m. of 17th.			$2,000,000	Snow	Total fall for period; 36.6 inches. During next 5 days, 18th to 22d, inclusive, an additional 9 inches of snow fell. This was fairly uniformly distributed over the area, did not create transportation tie-ups of itself, but did seriously impede snow clearance operations in the railroad yards and in downtown Buffalo. The distribution of the snow was uneven, heaviest falls probably as high as 70 inches occurring in South Buffalo, Lackawanna, Depew, and Lancaster, and communities 4 to 6 miles south of the airport. Mayors of Buffalo and Lancaster declared states of emergency for their cities on December 16. State Guard called out in Buffalo. Association of American Railroads declared a freight embargo for Buffalo on December 18 because of the tie-up of freight cars in the yards. Several lives were lost.
Havre, Mont.	21					Snow and wind	Easterly winds caused drifting snow, making transportation and movement of livestock difficult.
New Hope, Miss.	24	8:30 p. m.		3		Tornado	6 homes, 2 churches, and a store demolished. 3 occupants of 1 home killed; body of 1 found 880 yards from the house, the other 2 in a ditch across the road. The groceries from the demolished store scattered over a ½-mile area.
Nebraska, southeast portion.	24–25	10 a. m.–past midnight.				Heavy snow and high wind.	Snow to depth of over 12 inches in some localities blocked many roads and streets; many motorists stalled because of high drifts; city buses and truck lines delayed.
South Carolina, northwestern portion of State.		Noon of 24th–7 a. m., of 25th.				Ice	Rain began freezing as it fell about noon of the 24th and continued to freeze to around 7 a. m., of the 25th in the northwestern portion of the State, with light glaze on exposed objects as far south as Columbia. Upper northwestern counties experienced severest occurrence of its kind in 25 years or longer. Glaze especially heavy in Spartanburg, Union, Greenville, and Anderson Counties, greatest damage occurring in the two latter counties, with ice about an inch thick on the ground. A 15- to 20-mile wind accompanied the glaze, followed by heavy rains which intensified the damage. Electric and communication services disrupted several days when many wires snapped. Airplane and bus schedules interrupted, and factories suspended operations temporarily in some instances due to power failure. Many tree limbs snapped; forest damage comparatively severe in the hardest hit areas. Minor accidents and injuries occurred. Loss in thousands of dollars, not estimated.
Wisconsin, southern portion.	24–25			1		Sleet, glaze, and snow.	Highways hazardous, traffic delayed or suspended. Man fatally injured in traffic accident at Kaukauna. Numerous minor traffic accidents and injuries from falls. 39 persons sent to emergency hospitals in Milwaukee alone.
Havre, Mont., vicinity of.	28					Glaze	Highways dangerously slippery. Minor damage occurred.
Wisconsin, southern portion.	29–30				10,000	Sleet, glaze, and fog.	Travel hazardous, traffic halted or moved slowly. Numerous collisions and ditched cars, but few major accidents, and no fatalities. New 400-foot radio tower near Poynette crashed to the ground under a thick coating of ice. Damage estimated at $10,000.
Mobile, Ala.	30	P. m.		0		Tornado	With winds rising to 75 miles per hour, storm swept Mobile, leaving wrecked buildings, uprooted trees, and causing freak fires. Tornado passed in about a minute. Giant oak fell across a 5-room dwelling, splitting the roof; 4 occupants escaped. 3 sections of another house, the roof, a porch, and partly finished addition to the rear were blown away. Chimneys crumpled and windows and screens ripped out. Fires blazed throughout the city when falling limbs hit electric wires.
Pelham, Ga.	30			0		do	Property damaged; no details.

LATE STORM REPORTS FOR KANSAS, JULY 1945

[Reports not included in REVIEW of that month]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
	July 1945						
Rush and Pawnee Counties, Kans.	4	4–4:20 p. m.	[1] 2		$40,000	Hail	Hailstones as large as golf balls; path 10 miles long.
Hargrove, Kans., vicinity of.	4		[1] 2½		60,000	do	Partial damage to 6,000 acres of wheat; additional losses 3 miles north of Bison; path 6 miles long.
Tribune, Kans., 6 miles east.	6	8 a. m., M. W. T.	[1] 4		500,000	Heavy hail	Much crop loss; path diagonal from northwest to southeast and 32 miles long. On highway east of Whitelaw, hailstones were from 4 to 6 inches deep.
Kearney County, Kans., northeastern portion.	6	10 a. m.	[1] 6		200,000	do	Loss in wheat from 80 to 100 percent. In some places hailstones accumulated to depth of 4 inches; path 18 miles long.
Chase and Sterling, Kans., vicinity of.	7	8 p. m.	[1] 2		25,000	do	Loss in crops; path 10 miles long.
Sublette, Kans., 14 miles south.	8	7 p. m.			12,000	do	Brief, but heavy storm, with damage in localized area.
Topeka, Kans., and vicinity.	9	5–5:10 a. m.	[1] 3		7,700	Hail	Chief damage to windows in greenhouses in Topeka; many house roofs and exposed cars damaged. Loss in wheat between Dover and Topeka, $3,200; property damage, $4,500; path 15 miles long.
Ottawa, Kans., and vicinity.	9	6:30–6:50 a. m.	[1] 4		10,000		Loss to crops; damage to buildings, especially greenhouses; path 6 miles long.
Linn County, Kans., northeastern portion.	9	9:30 a. m.	[1] 2½		10,000	Hail and rain	Loss in crops. Accompanying heavy rain caused almost as much additional damage as the hailstorm; path 5 miles long.
Mound Valley, Kans.	9	10:30 a. m.	[1] 7		15,000	Hail	Loss in grain; path 9 miles long.
Coffeyville, Kans.	9	6:30–6:30 p. m.			1,000	Wind and electrical	Chief damage to communication and power lines.
Hugoton, Kans., 8 miles northwest.	11	8 p. m.	[1] 2		10,000	High wind	Property damage, $500; crop loss, $9,500; path 5 miles long.
Hamilton County, Kans., western portion.	12	8 p. m., M. W. T.	[1] 1½		30,000	Hail	Variable loss in wheat ranging up to 100 percent; path 7 miles long.
Sylvia, Kans., and vicinity.	17	4 a. m.	[1] 1½		7,000	Wind and hail	Chief damage to buildings; large tree limbs blown through roofs; communication and power service disrupted; path 2¾ miles long.

[1] Miles instead of yards.

NOTE.—Time used on this tabulation is Central War Time, unless otherwise indicated.

SOLAR RADIATION AND SUNSPOT DATA FOR DECEMBER 1945

[Solar Radiation Investigation Section, I. F. HAND, in charge]

SOLAR RADIATION OBSERVATIONS

Explanations of the tables and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the January 1944, MONTHLY WEATHER REVIEW, page 43. A list of the pyrheliometric stations is given on page 45 of the same REVIEW.

Twelve stations showed a deficiency for 1945; five showed an excess. The average deficiency for all of the stations is 2.8 percent.

TABLE 1.—*Solar radiation intensities during December 1945*

[GRAM CALORIES PER MINUTE PER SQUARE CENTIMETER OF NORMAL SURFACE]

Date	Sun's zenith distance										
	7:30 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p. m.
	75th mer. time	Air mass									75th mer. time
		A. M.				*1.0	P. M.				
	e	5.0	4.0	3.0	2.0		2.0	3.0	4.0	5.0	e
MADISON, WIS.											
	mb.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
Dec. 7	4.2	0.91	0.99	1.14	------	1.42	------	------	------	------	5.6
Dec. 11	1.4	.94	1.07	1.21	------	1.58	------	------	------	------	1.7
Dec. 14	2.3	------	------	.81	------	------	------	------	------	------	2.7
Dec. 15	0.7	.76	.92	1.13	------	1.52	------	------	------	------	0.9
Dec. 16	1.0	.81	.92	------	------	------	------	------	------	------	1.0
Dec. 17	0.7	.90	1.03	1.19	------	1.58	------	------	------	------	1.0
Dec. 19	1.1	------	.76	1.14	------	1.46	------	------	------	------	1.5
Means	------	.86	.95	1.10	------	1.51	------	------	------	------	------
Departures	------	−.06	−.10	−.10	------	−.03	------	------	------	------	------
LINCOLN, NEBR.											
Dec. 6	4.8	------	------	------	------	------	------	1.22	1.09	0.98	4.8
Dec. 7	4.0	------	------	------	------	------	------	1.20	1.05	.92	5.6
Dec. 13	2.6	------	------	0.94	------	------	------	1.13	1.00	.87	2.9
Dec. 29	4.8	0.62	0.85	1.03	------	------	------	1.11	.94	.83	5.8
Means	------	(.62)	(.85)	(.98)	------	------	------	1.16	1.02	.90	------
Departures	------	−.34	−.24	−.24	------	------	------	−.03	−.04	−.05	------
ALBUQUERQUE, N. MEX.											
Dec. 1	2.5	------	------	1.19	------	------	------	------	------	------	3.4
Dec. 2	2.1	------	------	------	1.30	------	1.33	1.19	1.07	0.98	3.0
Dec. 3	2.7	------	1.13	1.24	1.40	------	1.38	1.21	1.13	1.06	2.1
Dec. 6	1.8	0.96	1.02	1.22	1.34	------	1.34	1.26	1.14	1.01	2.0
Dec. 7	1.5	1.03	1.10	1.21	1.22	------	1.39	1.24	1.15	1.03	2.1
Dec. 8	1.8	1.07	1.16	1.27	1.39	------	1.37	------	1.08	------	2.2
Dec. 9	2.4	------	1.12	1.21	------	------	------	1.30	1.22	1.14	2.4
Dec. 13	2.3	1.04	1.16	1.25	1.38	------	------	------	------	------	2.4

TABLE 1.—*Solar radiation intensities during December 1945*—Con.

[GRAM CALORIES PER MINUTE PER SQUARE CENTIMETER OF NORMAL SURFACE]

Date	Sun's zenith distance										
	7:30 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p. m.
	75th mer. time	Air mass									75th mer. time
		A. M.				*1.0	P. M.				
	e	5.0	4.0	3.0	2.0		2.0	3.0	4.0	5.0	e
ALBUQUERQUE, N. MEX.—Continued											
Dec. 15	1.4	------	------	------	------	------	1.41	1.20	1.11	------	1.6
Dec. 17	2.4	------	------	------	------	------	1.25	1.09	1.05	.95	2.9
Dec. 18	2.4	1.03	1.13	1.22	1.38	------	1.39	------	------	------	2.9
Dec. 19	1.8	1.11	------	1.21	1.40	------	------	------	------	------	1.4
Dec. 20	1.2	------	------	1.07	1.41	------	1.32	1.30	1.21	1.14	1.6
Dec. 21	1.7	1.02	1.12	1.18	1.35	------	1.30	1.20	------	.99	2.7
Dec. 24	4.0	------	------	------	1.38	------	1.37	1.22	------	------	3.4
Dec. 27	3.6	------	------	------	------	------	1.37	1.24	------	------	3.4
Dec. 28	3.2	------	------	------	1.33	------	------	------	1.05	.93	3.2
Dec. 29	4.2	------	------	------	------	------	------	1.19	1.05	------	5.0
Dec. 30	4.2	1.05	1.15	1.25	------	------	------	1.20	1.20	1.14	3.4
Dec. 31	2.9	.89	1.01	1.25	1.41	------	1.39	1.24	1.19	------	2.7
Means	------	1.02	1.11	1.21	1.36	------	1.35	1.22	1.13	1.04	------
Departures	------	−.02	−.02	−.03	−.03	------	−.04	−.04	−.02	−.05	------
BLUE HILL, MASS.											
Dec. 8	6.1	------	------	------	------	------	------	1.21	------	------	5.8
Dec. 9	5.4	0.82	0.94	1.01	------	------	------	------	------	------	6.8
Dec. 11	2.2	.96	1.15	1.28	1.40	------	------	1.23	1.14	1.06	2.0
Dec. 12	0.9	1.11	1.20	1.31	1.47	------	------	1.30	1.19	1.07	1.0
Dec. 13	0.9	------	------	------	------	------	------	------	1.15	1.05	1.1
Dec. 17	1.0	.85	.93	1.07	------	------	------	.95	.83	.73	1.6
Dec. 18	1.3	.71	.83	.98	1.42	------	------	1.07	.94	.84	1.7
Dec. 20	1.8	------	------	------	1.36	------	------	------	------	.87	1.8
Dec. 21	1.7	.92	1.04	1.11	1.40	------	------	1.23	1.11	1.00	1.3
Dec. 22	0.8	------	------	------	------	------	------	1.28	------	1.03	1.0
Dec. 23	1.1	1.05	1.14	1.27	1.43	------	------	1.27	1.14	1.05	1.7
Dec. 24	1.7	1.07	1.16	1.28	1.43	------	------	1.19	1.06	1.01	2.5
Dec. 28	2.3	------	------	1.15	------	------	1.38	1.11	.98	.87	2.6
Means	------	.94	1.05	1.16	1.41	------	(1.38)	1.18	1.06	.96	------
Departures	------	+.04	+.01	−.01	+.06	------	+.08	+.03	+.03	.00	------
BOSTON, MASS.											
Dec. 11	2.7	0.77	1.00	------	------	------	------	------	0.99	0.96	2.1
Dec. 12	1.2	.82	1.00	1.14	------	------	------	------	1.10	.87	1.4
Means	------	(.80)	(1.00)	(1.14)	------	------	------	------	(1.04)	(.92)	------
Departures	------	+.09	+.16	+.15	------	------	------	------	+.23	+.22	------
RATIO, BOSTON/BLUE HILL, ON COMPARABLE DATES											
	------	(0.77)	(0.85)	(0.87)	------	------	------	------	(0.90)	(0.87)	------

*Extrapolated.

TABLE 2.—*Daily totals and weekly means of solar radiation (direct + diffuse) received on a horizontal surface*

[Gram calories per square centimeter]

Date	Washington, D. C.	Madison, Wis.	Lincoln, Nebr.	East Lansing, Mich.	New York, N. Y.	Fresno, Calif.	Fairbanks, Alaska	Columbia, Mo.	Boston, Mass.	Nashville, Tenn.	Twin Falls, Idaho	La Jolla, Calif.	Riverside, Calif.	Blue Hill, Mass.	Newport, R. I.	State College, Pa.	Put-in-Bay, Ohio	East Wareham, Mass.	Davis, Calif.	Tooele, Utah	New Orleans, La.	Toronto, Canada
1945	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
Dec. 3	89	53	170	36	53	158	(T)	17	60	20	109	238	214	74	44	22	34	.....	62	190	84	33
Dec. 4	47	68	159	119	50	27	1	169	54	20	38	232	245	57	52	129	226	54	91	96	38	186
Dec. 5	17	179	145	187	71	139	(T)	230	106	81	66	282	158	126	102	72	131	116	125	276	346	118
Dec. 6	34	102	192	65	23	269	1	141	21	123	56	283	285	23	17	31	48	24	231	266	306	17
Dec. 7	184	173	179	132	94	90	1	261	15	171	162	283	294	17	26	73	165	34	254	189	358	103
Dec. 8	236	160	188	170	180	56	1	240	103	241	88	245	274	204	221	155	204	.....	327	189	315	98
Dec. 9	161	171	172	31	131	89	1	211	154	88	188	241	294	151	135	146	215	140	252	302	251	132
Means	110	129	172	106	86	118	1	181	85	106	101	258	252	93	85	90	146	88	192	215	242	95
Departures	−50	+13	−1	+21	−39	−66	−6	+45	−18	−12	−23	+12	+30	−43	−51	−28	+32	−52	−5	−27	+33	.....
Dec. 10	13	165	136	68	9	98	2	233	34	40	92	281	296	38	30	43	40	31	184	137	327	108
Dec. 11	233	226	199	109	231	154	(T)	197	200	130	93	103	80	224	238	106	72	239	176	168	80	172
Dec. 12	184	145	39	69	223	117	(T)	46	200	220	96	282	282	235	244	147	144	229	302	276	265	115
Dec. 13	65	45	217	36	148	183	(T)	51	163	14	90	208	276	193	222	119	51	218	319	304	87	121
Dec. 14	84	179	224	26	80	134	(T)	276	66	20	151	278	264	74	58	42	41	57	235	296	78	99
Dec. 15	94	203	247	156	63	148	8	270	97	175	131	280	277	131	98	151	208	107	78	216	333	148
Dec. 16	246	193	207	99	192	61	(T)	250	125	249	193	266	276	130	164	194	183	170	303	288	242	145
Means	131	165	181	80	135	128	2	189	126	122	121	248	250	146	150	114	107	150	228	241	202	130
Departures	−10	+47	+20	−20	+18	−41	−2	+27	+9	−9	−6	+8	+46	+0	+4	−6	−13	−3	+32	−5	+5	.....
Dec. 17	240	226	75	136	173	75	(T)	103	168	210	111	253	247	203	208	190	236	195	257	248	313	132
Dec. 18	116	196	82	164	168	49	(T)	65	166	38	200	60	98	199	203	143	119	192	177	266	137	150
Dec. 19	55	209	215	111	17	93	(T)	262	8	103	198	202	236	20	27	57	94	21	144	292	282	31
Dec. 20	184	162	195	68	175	68	13	239	174	245	144	170	143	198	180	163	76	180	76	219	189	96
Dec. 21	234	85	185	97	132	29	16	208	182	223	48	135	44	216	163	196	103	201	60	135	300	116
Dec. 22	80	161	146	166	62	172	18	190	180	78	78	26	46	184	123	117	123	158	144	116	254	93
Dec. 23	246	116	7	165	221	220	1	24	180	17	124	133	196	226	232	246	91	240	207	238	35	160
Means	165	165	129	130	136	101	7	156	152	130	120	143	144	178	162	159	120	170	152	216	216	111
Departures	+16	+43	−40	+32	+23	−47	+1	+6	+37	+7	+16	−84	−68	+38	+19	+42	+8	+15	+18	−2	0	.....
Dec. 24	239	29	22	36	195	92	16	14	168	34	95	153	103	220	234	205	59	198	90	197	99	88
Dec. 25	10	30	150	24	50	123	12	21	88	98	76	243	143	130	117	19	42	136	64	171	326	(T)
Dec. 26	59	133	206	24	125	140	(T)	121	87	234	116	265	160	78	75	31	36	76	96	239	326	(T)
Dec. 27	192	187	62	69	146	80	3	183	86	28	49	184	201	94	161	119	73	133	80	210	142	132
Dec. 28	26	29	180	54	45	212	8	137	170	82	35	264	150	203	203	62	56	165	113	105	70	77
Dec. 29	60	17	131	37	17	64	(T)	33	8	123	71	74	256	18	13	100	70	17	169	81	52	14
Dec. 30	12	28	59	15	53	134	(T)	45	127	16	182	213	282	159	120	38	35	131	300	285	256	7
Dec. 31	67	145	207	81	11	103	(T)	78	4	15	118	269	284	29	26	53	60	26	122	224	344	57
Means	83	75	128	42	80	119	5	79	92	79	93	208	197	116	117	78	54	110	129	189	202	47
Departures	−60	−40	−31	−39	−41	−23	−1	−36	−10	−13	−36	−16	−7	−9	−16	−22	−40	−36	+5	−23	+33	.....
ACCUMULATED DEPARTURES ON DECEMBER 31, 1945																						
.....	+1,382	+11,916	−7,528	−4,925	−10,772	−3,075	−3,529	.....	−2,887	−1,539	−10,340	−17,880	+6,055	−8,479	−11,524	+3,142	−159	.....	+516	.....	.....	.....
PERCENTAGE DEPARTURES FOR THE YEAR																						
.....	+1.1	+10.0	−5.6	−4.8	−9.5	−1.9	−4.4	.....	−2.8	−1.3	−7.3	−11.7	+4.0	−6.9	−9.1	+2.7	−0.1	.....	+0.3	.....	.....	.....

T indicates a trace of solar radiation.

ADDITIONAL DATA FOR BOULDER, COLO., NOVEMBER 1945

Week beginning	Mean	Departure
Oct. 29	276	−29
Nov. 5	264	+35
Nov. 12	241	+25
Nov. 19	208	−12
Nov. 26	192	−11

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR DECEMBER 1945

By LUCY T. DAY

[Equatorial Division, U. S. Naval Observatory]

[Communicated by Commodore J. F. Hellweg, U. S. N. (Ret.) Superintendent, U. S. Naval Observatory.] All measurements and spot counts were made at the Naval Observatory from plates taken at the observatories indicated. Difference in longitude is measured from the central meridian, positive toward the west. Latitude is positive toward the north. Areas are corrected for foreshortening and expressed in millionths of Sun's hemisphere. For each day, under longitude, latitude, area of spot or group, and spot count are included assumed longitude of center of the disk, assumed latitude of center of the disk, total areas of spots and groups, and total spot count]

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1945	h m		°	°	°	°				
Dec. 1	10 50	7904	−20	67	−14	24	145	9	F	U. S. Naval.
		7904	−15	72	−14	21	194	2		
		7907	+72	159	+27	73	48	1		
		7907	+80	167	+26	80	194	4		
				(87)	(+1)		581	16		
2	11 58	7904	−7	67	−15	17	170	7	F	Do.
		7904	−2	72	−15	16	242	2		
		7906	+27	101	−30	40	12	1		
		7906	+30	104	−30	42	16	2		
				(74)	(+1)		440	12		
3	15 59	7908	−71	347	−22	73	12	1	F	Mt. Wilson
		7904	+7	65	−15	17	24	7		
		7904	+12	70	−15	19	267	12		
		7904	+15	73	−15	22	206	1		
		7904	+17	75	−16	23	12	1		
				(58)	(+1)		521	22		
4	14 21	7908	−61	345	−21	63	24	4	VG	Do.
		7908	−58	348	−22	60	48	2		
		7904	+22	68	−16	27	170	20		
		7904	+22	68	−18	28	97	1		
		7904	+24	70	−14	28	12	1		
		7904	+26	72	−16	30	97	7		
		7904	+27	73	−17	32	194	1		
				(46)	(0)		642	36		
5	11 15	7908	−50	345	−21	53	36	3	G	Do.
		7908	−47	348	−22	51	48	2		
		7904	+33	68	−16	36	145	13		
		7904	+33	68	−18	37	73	1		
		7904	+37	72	−16	40	145	7		
		7904	+39	74	−17	42	121	2		
				(35)	(0)		568	28		
6	11 20	7908	−39	342	−21	43	24	2	G	Do.
		7908	−35	346	−22	40	12	1		
		7904	+47	68	−16	49	97	11		
		7904	+47	68	−18	50	73	9		
		7904	+51	72	−17	53	170	12		
				(21)	(0)		376	35		
7	11 47	7911	−78	290	−22	79	24	1	F	U. S. Naval.
		7910	−76	292	−17	77	194	2		
		7909	+37	45	−23	42	12	3		
		7904	+58	66	−18	60	6	2		
		7904	+63	71	−17	65	85	8		
				(8)	(0)		321	16		
8	10 50	7911	−65	290	−22	67	48	1	F	Do.
		7910	−65	290	−17	66	73	1		
		7910	−62	293	−17	63	109	1		
		7904	+76	71	−17	77	73	2		
				(355)	(0)		303	5		
9	11 18	7911	−52	290	−22	55	48	1	F	Do.
		7910	−52	290	−17	53	61	1		
		7910	−48	294	−17	51	85	1		
				(342)	(0)		194	3		
10	11 14	7911	−41	288	−21	45	6	1	F	Mt. Wilson.
		7911	−39	290	−19	43	16	1		
		7911	−38	291	−21	43	36	1		
		7910	−38	291	−17	42	36	1		
		7910	−35	294	−17	38	61	1		
		7912	+62	31	−14	63	6	2		
				(329)	(0)		161	7		
11	10 56	(*)	−32	284	−24	39	24	4	G	U. S. Naval
		7911	−27	289	−21	34	48	3		
		7910	−25	291	−17	30	24	1		
		7910	−23	293	−17	28	61	6		
				(316)	(0)		157	14		

See footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR DECEMBER 1945—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1945	h m		°	°	°	°				
Dec. 12	11 22	7916	−65	237	+24	69	6	2	G	U. S. Naval.
		7914	−56	246	+17	58	6	2		
		7914	−52	250	+16	54	6	1		
		7911	−13	289	−22	23	24	3		
		7911	−12	290	−21	23	6	1		
		7910	−9	293	−17	18	48	4		
		7913	+44	346	−26	50	12	2		
				(302)	(−1)		108	15		
13	10 53	7914	−42	247	+16	45	16	1	VG	Mt. Wilson.
		7914	−38	251	+15	41	24	4		
		7915	−5	284	+27	29	36	10		
		7915	−3	286	+27	28	24	5		
		7911	−2	287	−26	25	6	1		
		7911	−1	288	−23	22	16	2		
		7910	+3	292	−18	17	36	9		
		7910	+5	294	−17	16	24	1		
		7913	+56	345	−26	59	6	1		
				(289)	(−1)		188	34		
14	13 44	7917	−74	201	+31	77	218	1	F	U. S. Naval.
		7916	−37	238	+25	43	6	1		
		7914	−27	248	+17	33	24	1		
		7914	−21	254	+16	27	36	2		
		7915	+11	286	+29	36	48	2		
		7911	+14	289	−22	23	36	1		
		7915	+15	290	+27	32	24	3		
		7910	+19	294	−18	25	24	3		
		(*)	+36	311	+9	37	12	1		
				(275)	(−1)		428	15		
15	14 13	7917	−60	201	+30	65	170	1	F	Mt. Wilson.
		7916	−24	237	+24	34	6	1		
		7916	−20	241	+23	31	24	4		
		7914	−17	244	+16	23	6	1		
		7911	+27	288	−20	32	36	6		
		7910	+30	291	−17	33	12	2		
				(261)	(−1)		254	15		
16	11 6	7919	−80	170	+23	80	242	1	P	U. S. Naval.
		7917	−47	203	+31	55	145	1		
		7916	−10	240	+21	24	12	1		
		7918	−7	243	+28	30	24	1		
		7916	−6	244	+24	26	36	1		
				(250)	(−1)		459	5		
17	11 20	7919	−66	170	+23	68	291	1	P	Do.
		7917	−33	203	+32	45	121	1		
		7918	+6	242	+30	32	73	2		
		7916	+7	243	+23	24	48	1		
		7918	+8	244	+29	31	61	1		
				(236)	(−1)		594	6		
18	11 21	7919	−52	171	+22	56	218	1	F	Do.
		7917	−21	202	+32	39	97	1		
		7918	+19	242	+30	36	73	2		
		7918	+21	244	+29	35	61	2		
		7916	+21	244	+23	33	12	1		
				(223)	(−1)		461	7		
19	11 8	7919	−39	171	+21	43	194	1	G	Mt. Wilson.
		7917	−10	200	+30	32	97	1		
		7921	+43	253	−14	44	12	5		
		7920	+57	267	−22	59	12	4		
				(210)	(−1)		315	11		
20	10 57	(*)	−29	168	+25	39	12	6	F	U. S. Naval.
		7919	−26	171	+22	34	206	1		
		7917	+1	198	+33	35	12	3		
		7917	+4	201	+32	35	61	1		
				(197)	(−2)		291	11		
21	11 0	(*)	−15	169	+25	30	12	4	F	Do.
		7919	−13	171	+22	27	194	1		
		7917	+16	200	+30	36	61	1		
				(184)	(−2)		267	6		
23	10 43	7919	+13	171	+21	27	194	1	F	Do.
		7917	+42	200	+31	51	24	1		
				(158)	(−2)		218	2		
24	10 51	7922	−77	67	−17	77	291	1	G	Do.
		7919	+26	170	+21	34	194	1		
				(144)	(−2)		485	2		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR DECEMBER 1945—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic				Area of spot or group	Spot count	Plate quality	Observatory
			Difference in longitude	Longitude	Latitude	Distance from center of disk				
1945	h m		°	°	°	°				
Dec. 26	14 26	7922	−55	61	−16	57	24	1	G	Mt. Wilson.
		7922	−48	68	−17	49	242	1		
		7919	+56	172	+21	60	194	1		
				(116)	(−2)		460	3		
27	11 8	7922	−37	68	−17	40	291	1	F	U. S. Naval.
		7919	+67	172	+20	70	218	2		
				(105)	(−2)		509	3		
28	14 40	7922	−22	68	−18	27	267	1	(†)	Mt. Wilson.
		7919	+82	172	+20	82	194	1		
				(90)	(−3)		461	2		
29	13 50	7922	−11	66	−17	18	48	1	G	U. S. Naval.
		7922	−10	67	−17	17	267	1		
				(77)	(−3)		315	2		
30	11 9	7923	−80	345	−15	80	24	1	VG	Mt. Wilson.
		7922	+2	67	−17	14	12	1		
		7922	+3	68	−17	14	194	1		
				(65)	(−3)		230	3		
31	14 11	7923	−70	340	−13	70	24	1	G	U. S. Naval.
		7923	−65	345	−14	66	48	1		
		7922	+16	66	−17	22	12	1		
		7922	+17	67	−17	24	194	1		
		7924	+43	93	+17	46	12	1		
				(50)	(−3)		290	5		

Mean daily area for 29 days=365

†Data from Mount Wilson charts.
*Not numbered.
VG=very good; G=good; F=fair; P=poor.

PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR NOVEMBER 1945

[Based on observations at Zurich except as indicated by an asterisk. Data furnished through the courtesy of Prof. W. Brunner, Swiss Federal Observatory, Zurich, Switzerland.]

November 1945	Relative numbers	November 1945	Relative numbers	November 1945	Relative numbers
1	56	11	31	21	35
2		12	33	22	*Mc*45
3	38	13	49	23	56
4	36	14	65	24	54
5		15	66	25	56
6	44	16	55	26	63
7	39	17	42	27	53
8	31	18	52	28	58
9	37	19	55	29	33
10	29	20	46	30	49

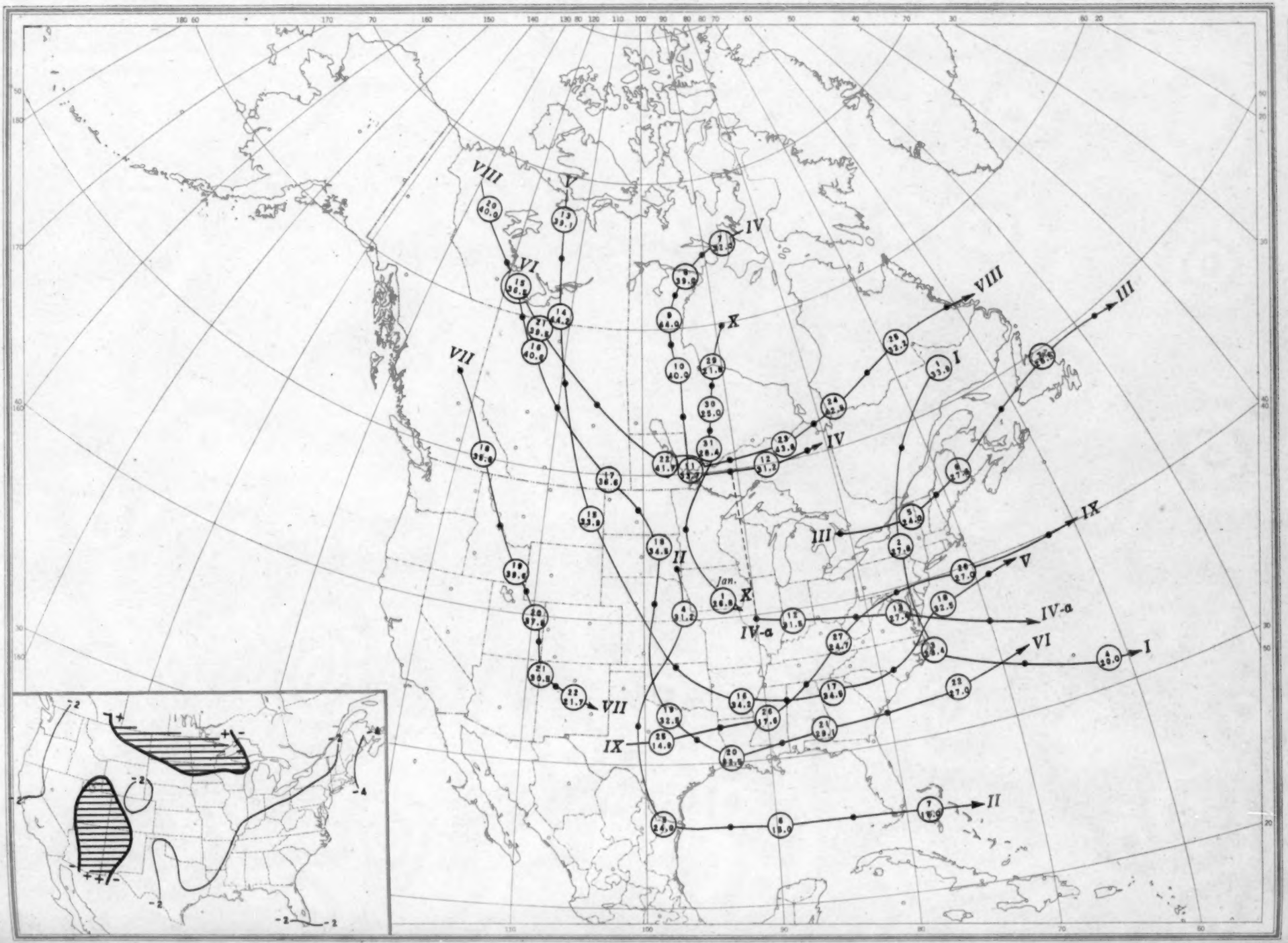
Mean, 28 days=46.6

c New formation of a group developing into a middle-sized or large center of activity; E, on the eastern part of the Sun's disc; W, on the western part; M, in the central circle zone.

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, December 1945

Chart II. Tracks of Centers of Anticyclones, December 1945. (Inset) Departure of Monthly Mean Pressure from Normal

(Plotted by D. R. Harris)



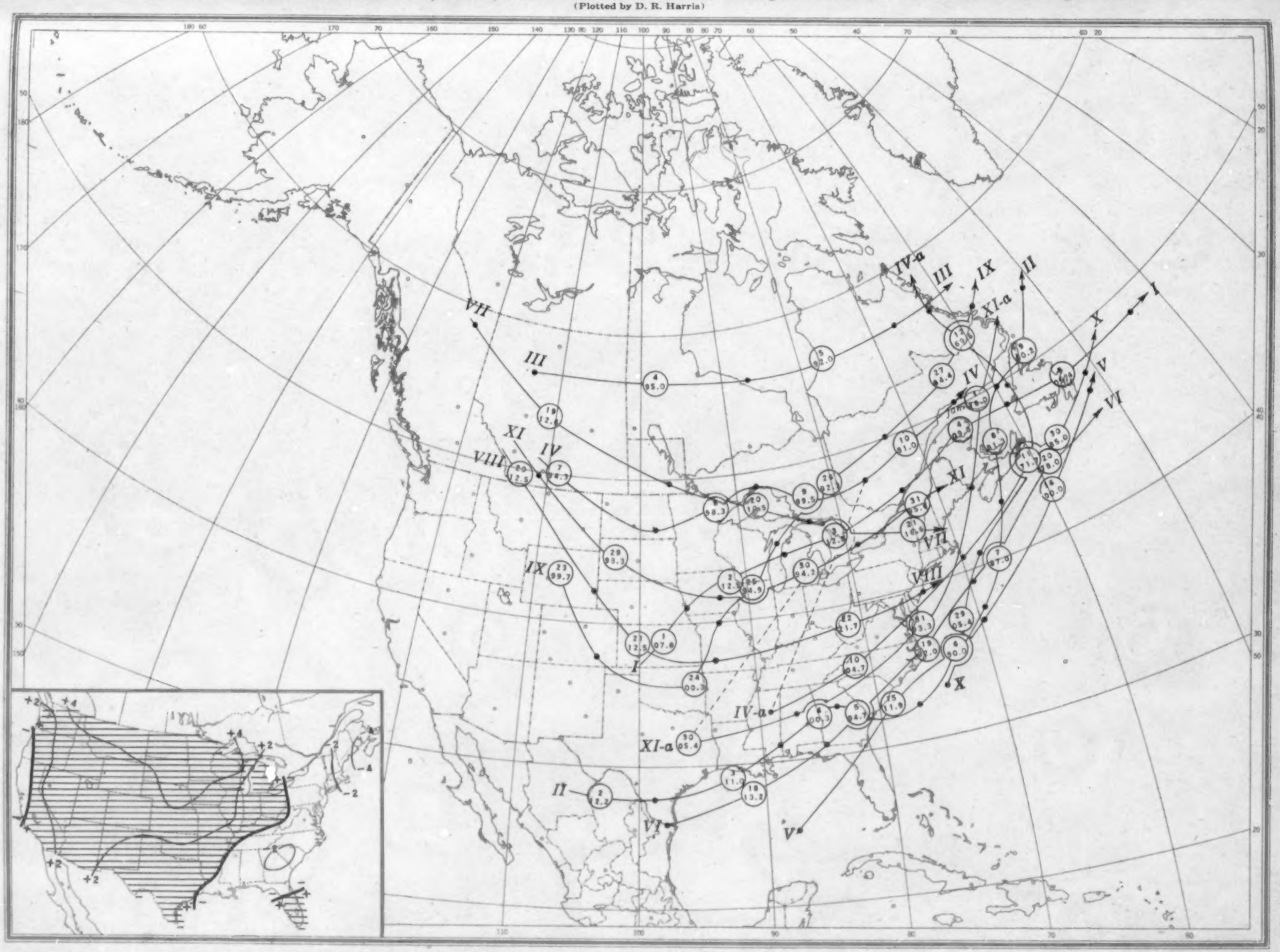
Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)

Chart III. Tracks of Centers of Cyclones, December 1945. (Inset) Change in Mean Pressure from Preceding Month

Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)

Chart III. Tracks of Centers of Cyclones, December 1945. (Inset) Change in Mean Pressure from Preceding Month

(Plotted by D. R. Harris)



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of cyclone at 7:30 p. m. (75th meridian time)

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, December 1945

Chart V. Total Precipitation, Inches, December 1945. (Inset) Departure of Precipitation from Normal

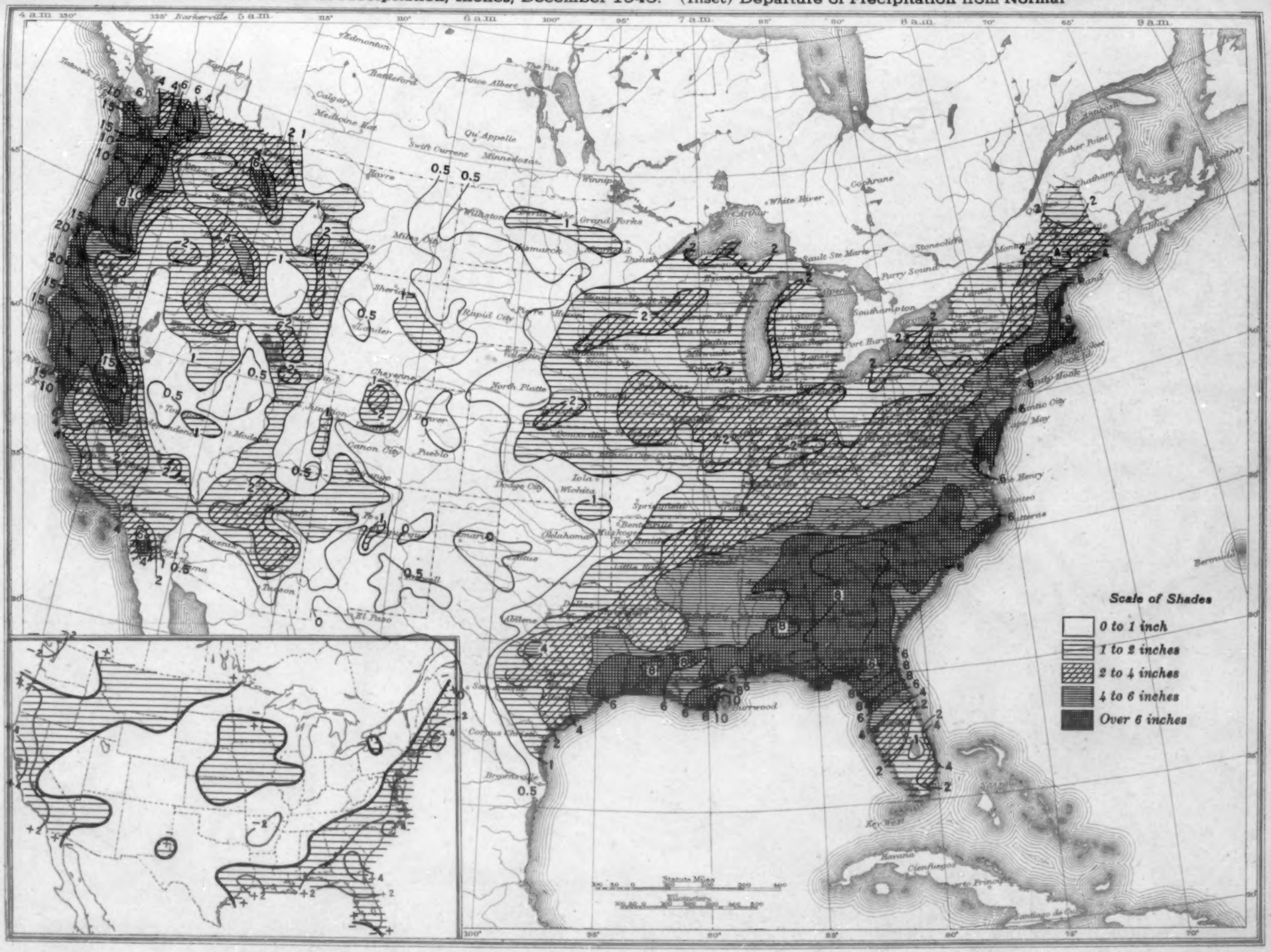


Chart VI. Isobars (mb), at Sea Level and Isotherms (°F.) at Surface; Prevailing Winds, December 1945

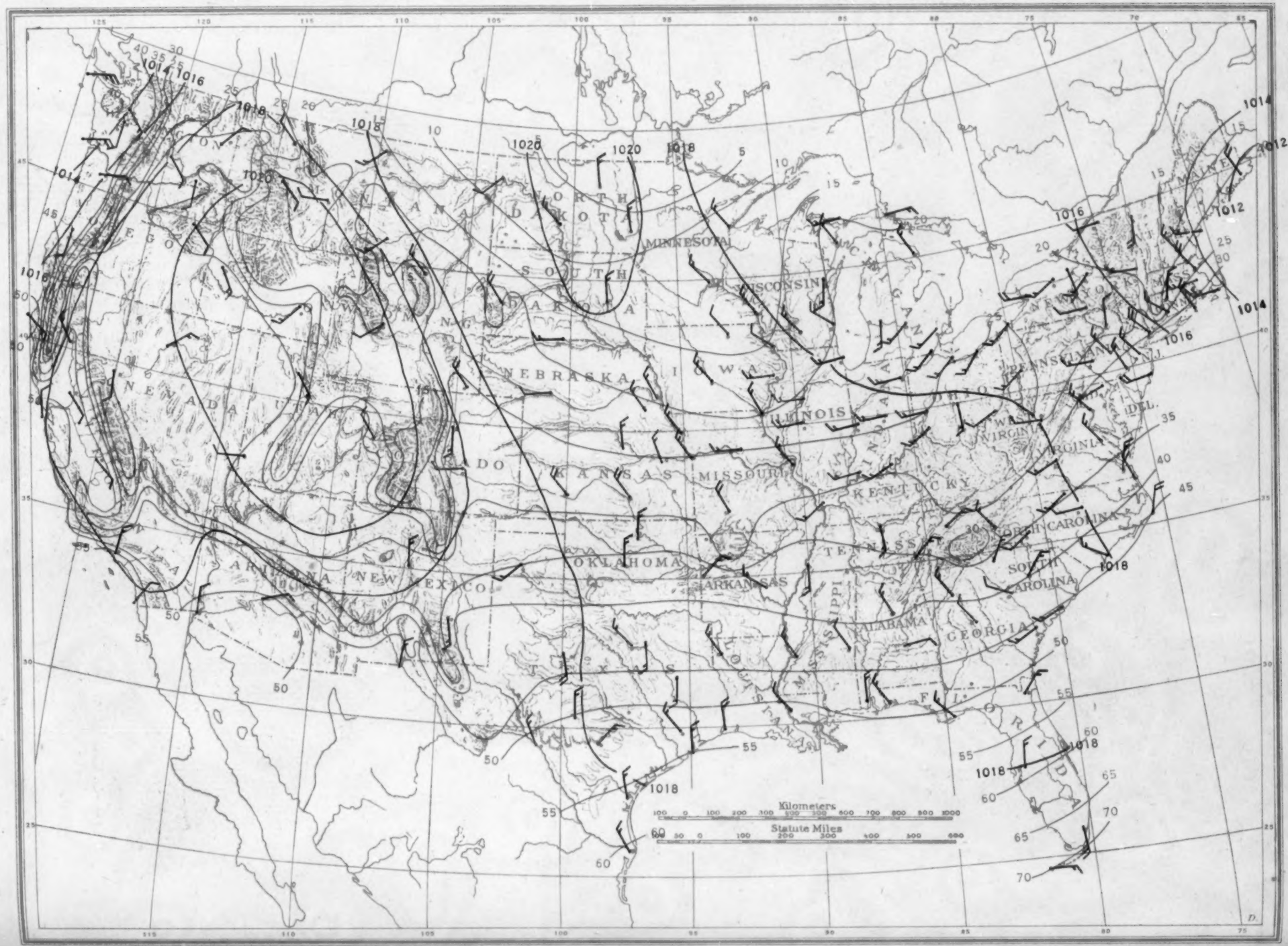


Chart VII. Total Snowfall, Inches, December 1945. **(Inset) Depth of Snow on the Ground at 7:30 p. m., Monday, December, 31 1945**

TRACE
Barkerville
Edmonton
Battleford
Prince Albert
The Pas
Calgary
Medicine Hat
Qu'Appelle
Swift Current
Minnedosa
Winnipeg
White River
Cochrane
Port Arthur
Father Point
Chatham
Sydney
Spokane
Kalispell
Helena
Billings
Bismarck
Minot
Williston
Devils Lake
Grand Forks
Sault Ste Marie
Stonecliffe
Montpelier
Burlington
Eastport
Portland
Concord
Boston
Albany
Buffalo
Toronto
Hamilton
Kingston
Ottawa
Quebec
Yellowstone
Glasgow
Havre
Miles City
Sheridan
Lander
Casper
Cheyenne
Pierre
Huron
Aberdeen
Jamestown
Fargo
Grand Forks
St Paul
Minneapolis
Duluth
Grand Rapids
La Crosse
Madison
Milwaukee
Green Bay
Port Huron
Detroit
Lansing
Grand Rapids
Fort Wayne
Chicago
South Bend
Toledo
Cleveland
Erie
Rochester
Syracuse
Utica
Albany
Binghamton
Scranton
Wilkes-Barre
Harrisburg
Philadelphia
Atlantic City
New York (City)
Sandy Hook
Trenton
Cape May
Wilmington
Baltimore
Washington
Richmond
Norfolk
Cape Hatteras
Henry
Manteo
Bermuda
North Platte
Omaha
Lincoln
Des Moines
Moline
Peoria
Springfield
Quincy
St Joseph
Concordia
Topeka
Kansas City
Independence
Columbia
St Louis
Springfield
Joplin
Iola
Wichita
Dodge
Oklahoma
Muskogee
Fort Smith
Amarillo
Albuquerque
Tucumcari
Roswell
Clayton
Raton
Trinidad
Pueblo
Denver
Grand Junction
Modena
Salt Lake City
Provo
Ely
Reno
Winnemucca
Elko
Tonopah
Las Vegas
Los Angeles
San Diego
Phoenix
Yuma
Tucson
Santa Fe
Flagstaff
Needles
Fresno
San Francisco
Eureka
Portland
Seattle
Tatoosh Island
Kamloops
Calgary
Medicine Hat
Swift Current
Minnedosa
Winnipeg
Kalispell
Spokane
Helena
Billings
Bismarck
Minot
Williston
Devils Lake
Grand Forks
Fargo
Jamestown
Aberdeen
Pierre
Huron
Sioux City
Yellowstone
Glasgow
Havre
Miles City
Sheridan
Lander
Casper
Cheyenne
Denver
Pueblo
Grand Junction
Salt Lake City
Provo
Ely
Reno
Winnemucca
Elko
Tonopah
Las Vegas
Los Angeles
San Diego
Phoenix
Yuma
Tucson
Santa Fe
Albuquerque

Chart VIII. Isobars (mb) for 1,524 Meters (5,000 ft.), and Isotherms (°C.), and Resultant Winds for 1,500 Meters (m. s. l.) December 1945

Chart VIII. Isobars (mb) for 1,524 Meters (5,000 ft.), and Isotherms (°C.), and Resultant Winds for 1,500 Meters (m. s. l.) December 1945

Isobars and isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot balloon observations at 5:00 p. m. (E. S. T.).

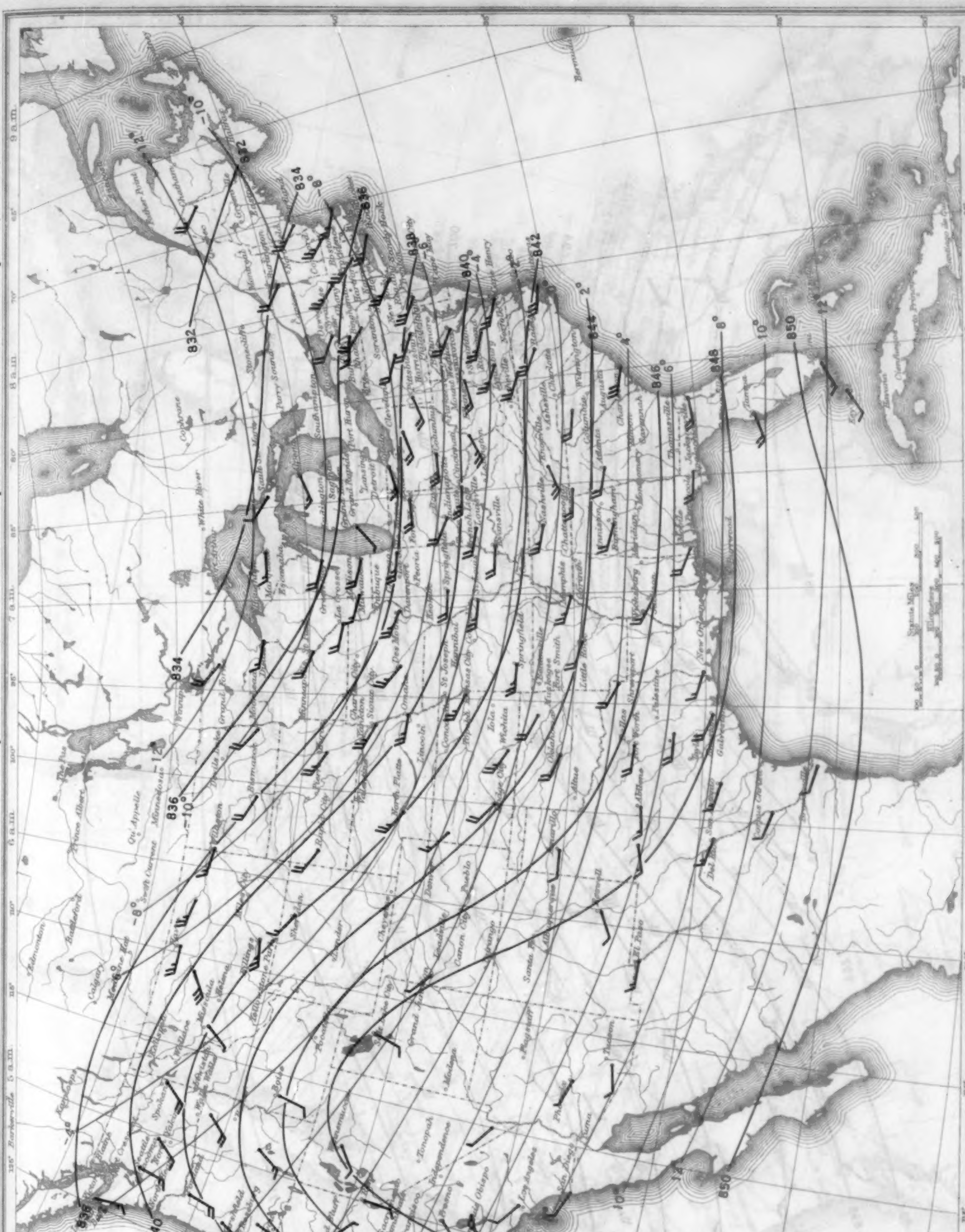


Chart IX. Isobars (mb), Isotherms (°C.), and Resultant Winds for 3,000 Meters (m. s. l.) December 1945

Isobars and isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot balloon observations at 5:00 p. m. (E. S. T.).

Chart X. Isobars (mb), Isotherms (°C.), and Resultant Winds for 5,000 Meters (m. s. l.) December 1945

Chart X. Isobars (mb), Isotherms (°C.), and Resultant Winds for 5,000 Meters (m. s. l.) December 1945

Isobars and isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot balloon observations at 5:00 p. m. (E. S. T.).

Chart XI. Isobars (mb), Isotherms (°C.), and Resultant Winds for 10,000 Meters (m. s. l.) December 1945

Isobars and isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot balloon observations at 5:00 p. m. (E. S. T.).

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